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Structural Competency Meets Structural Racism: Race, Politics, and the Structure of Medical Knowledge
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Physicians in the United States have long been trained to assess race and ethnicity in the context of clinical interactions. Medical students learn to identify how their patients' "demographic and cultural factors" influence their health behaviors [1]. Interns and residents receive "cultural competency" training to help them communicate with persons of differing "ethnic" backgrounds [2]. And clinicians are taught to observe the races of their patients and to dictate these observations into medical records—"Mr. Smith is a 45-year-old African American man"—as a matter of course [3].

To be sure, attention to matters of diversity in clinical settings has been shown to affect a number of factors central to effective diagnosis and treatment [4]. Yet an emerging educational movement challenges the basic premise that having a culturally competent or sensitive clinician reduces patients' overall experience of stigma or improves health outcomes. This movement, called "structural competency" [5], contends that many health-related factors previously attributed to culture or ethnicity also represent the downstream consequences of decisions about larger structural contexts, including health care and food delivery systems, zoning laws, local politics, urban and rural infrastructures, structural racisms, or even the very definitions of illness and health. Locating medical approaches to racial diversity solely in the bodies, backgrounds, or attitudes of patients and doctors, therefore, leaves practitioners unprepared to address the biological, socioeconomic, and racial impacts of upstream decisions on structural factors such as expanding health and wealth disparities [6].

In 1968, the US civil rights activist Stokely Carmichael famously assailed racial bias embedded, not in actions or beliefs of individuals, but in the functions of social structures and institutions. "I don't deal with the individual," he said. "I think it's a copout when people talk about the individual" [7]. Instead, speaking to a group of mental-health practitioners, Carmichael protested the silent racism of "established and respected forces in the society" that functioned above the level of individual perceptions or intentions and that worked to maintain the status quo through such structures as zoning laws, economic policies, welfare bureaucracies, school systems, criminal law enforcement, and courts. Institutionalized racism, he argued, "is less overt, far more subtle, less identifiable in terms of specific individuals committing the acts, but is no less destructive of human life" [7].

Attention to structure as an organizing principle in US medical education is particularly important at the current moment because the forces Carmichael described have become more pressing and recognizable. Indeed, US physicians have never known more about the ways in which the inequities of social and economic systems help to shape the material realities of their patients' lives. Epidemiologists tie the daily experience of racial discrimination to damaging levels of chronic stress, illuminating how racism is "embodied" [8, 9]. Neuroscientists show neuronal linkages of social exclusion and poverty with hampered brain functioning [10, 11]. Epigenetic researchers explain, at the level of gene methylation, how high-stress, resource-poor environments can produce risk factors for disease that may last for generations if not interrupted by social interventions [12]. And economists prove that people with low incomes can reduce their rates of diabetes and major depression by moving to safer, more affluent neighborhoods [13]. These are but a few examples of the types of research that doctors can now access to understand how disadvantages stemming from social and economic infrastructures can impair health.

On the other hand, evidence also suggests that inattention to these forces has caused a crisis of competence for which American medical education is ill-prepared. Eighty-five (85) percent of primary care providers and pediatricians polled in a 2011 Robert Wood Johnson survey agreed with the statement that "unmet social needs are leading directly to worse health for all Americans" while at the same time voicing concern that they did not "feel confident in their capacity to meet their patients' social needs," and that their failure to do so "impedes their ability to provide care" [14].

Building on scholarly work from fields including law [15], public health [16-18], history [19, 20], and sociology [21], structural competency addresses these "social needs"—and their links to race and racism [22]—by increasing clinician recognition of the health-related influences of institutions, markets, and health care delivery systems. This, in turn, shapes doctors' diagnostic knowledge, influencing what happens in the clinic in profound ways.

This essay uses three historical case studies to illustrate how extraclinical stigma, socioeconomic factors, and politics can shape diagnostic and treatment disparities. We then explore how attention to structure helps explain the role of race in clinical encounters. Finally, we draw some lessons for medical education that take account of structure.

Case 1: The Overdiagnosis of Schizophrenia
An epidemic of insanity afflicted African American men in the 1960s-1980s. Or so it seemed to mental-health researchers at the time. In 1969, a series of National Institute of Mental Health studies found that "blacks" suffered from schizophrenia 65 percent more frequently than did "whites." In 1973, a series of studies in the *Archives of General Psychiatry* discovered that African American patients were "significantly more likely" than white patients to receive schizophrenia diagnoses and "significantly less likely" than white patients to receive diagnoses for other mental illnesses such as depression or bipolar disorder [23-25].

Such findings flew in the face of standard psychiatric understanding that most major psychiatric disorders should occur equally among all persons, regardless of race. And yet the problem worsened: researchers in the 1970s and 1980s discovered that doctors diagnosed the paranoid subtype of schizophrenia in African American men five to seven times more often than in white men [26, 27].

At the time, this overdiagnosis appeared to be a problem caused by doctor-patient miscommunication or mistrust. Clinical educators thus began a series of cross-cultural initiatives meant to eliminate physician bias, under the assumption that such bias was the prevailing cause of the diagnostic disparities. Yet these initiatives were largely unsuccessful [28]. Why?

We now recognize that the misdiagnosis of schizophrenia resulted, not just from clinical bias, but from structural shifts in psychiatric definitions of the illness. For instance, prior to the 1960s, psychiatry defined schizophrenia as a psychological "reaction" to a splitting of the basic functions of personality. In 1952, the first edition of what later became the *Diagnostic and Statistical Manual* (*DSM*) described "Schizophrenic Reaction" as "emotional disharmony, unpredictable disturbances in stream of thought," and "regressive behavior" [29]. As a result of this framing, medical authors frequently described schizophrenia as a condition that afflicted middle-class, white housewives [30]. Until that time, mainstream American newspapers had described schizophrenia as an illness that occurred "in the seclusive, sensitive persons" [31, 32] or told of white "schizophrenic poets" who produced brilliant rhymes [33]. Popular magazines wrote stories about unhappily married, middle-class, white housewives whose "schizophrenic mood swings" were suggestive of "Doctor Jekyll and Mrs. Hyde" [34-38].

But in 1968, the second edition of the *DSM* recast paranoid schizophrenia as a condition of "hostility," "aggression," and projected anger, and included text explaining that, "the patient's attitude is frequently hostile and aggressive, and his behavior tends to be consistent with his delusions" [39]. As Metzl has previously shown, the addition of concepts such as aggression and hostility had profound racial implications [20]. In the aftermath of the *DSM-II*, clinician overdiagnosis of schizophrenia in African American men rose significantly [40]. Published psychiatric research articles and case studies began to disproportionately describe "schizophrenic" African American men using descriptors such as *aggressive*, *hostile*, or *violent* (see figure 1).
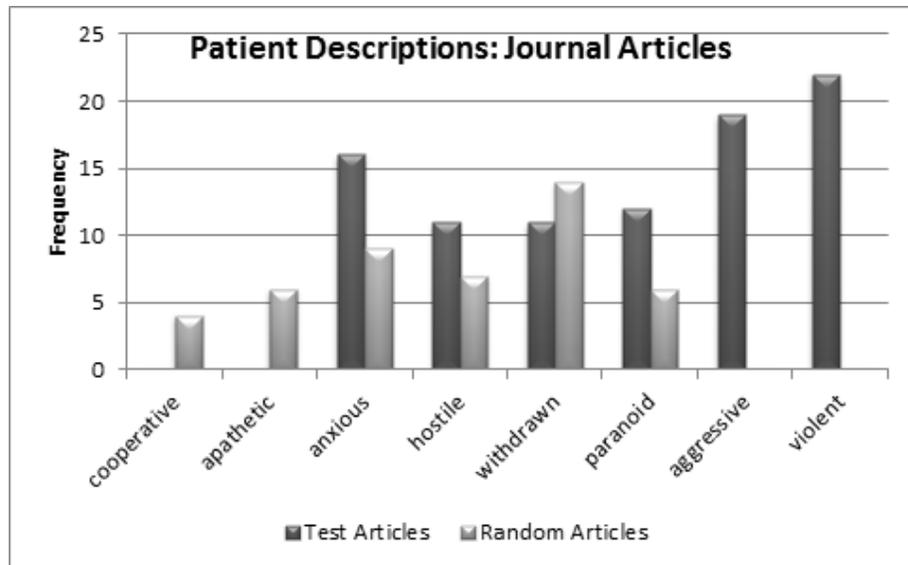
Figure 1. Adjectives used to describe patients with schizophrenia in psychiatric journals, 1960-1979 [20]. Test articles=those in which race was identified as "Negro" or "black." Random articles=those in which race was unspecified and assumed white. N=341.

Advertisements for antipsychotic medications published in leading US journals made similar assumptions [30]. An advertisement for the antipsychotic medication Haldol that appeared in the May 1974 *Archives of General Psychiatry* (see figure 2) shows the troubling, distorted image of an angry African American man below the text, "Assaultive and belligerent? Cooperation often begins with Haldol" [41].

Figure 2. 1974 Haldol advertisement, *Archives of General Psychiatry* [41].

These and other examples suggest that the overdiagnosis of schizophrenia in African American men in the 1960s and 1970s resulted neither primarily from individual doctors' biases nor from the actions or symptoms of patients. Rather, it reflected a series of structural shifts in the framing of mental illness that incorporated racially and politically inflected terminology.

Case 2: The Unhealthy Diet
For much of the twentieth century, medical practitioners defined patients who did not follow medical advice about diet or lifestyle as "noncompliant." This rhetoric often coded such patients as refusing for individual or cultural reasons to take steps necessary to improve their health or longevity. In the US, the descriptor of noncompliance frequently applied to persons of lower socioeconomic status or persons from minority groups [42]. For instance in the mid-1980s, studies tended to define Native Americans with type 2 diabetes as being "diet noncompliant" [43]. Through the early 2000s, dieticians listed "the African-American diet" as a risk factor for the disease [44]. Over this same time period, even well-intentioned public-health efforts focused on altering minority "attitudes" and practices regarding such matters such as diet, exercise, and smoking [45, 46].

No doubt individual choice and cultural influence are important in the development of health-promoting behaviors. Recently, however, the impact of socioeconomic and structural factors on such choices has become more apparent. For instance, it has become increasingly clear that maintenance of a "healthy" diet is rendered exceedingly difficult for persons who live in low-income or underserved areas, not because of racial or ethnic attitudes, but because these areas are dramatically lacking in the services that make a healthy diet possible in the first place. Sociologists [47] detail how, since certain impoverished neighborhoods in the US contain no grocery stores and are inaccessible by public transportation, residents of these neighborhoods must walk up to three hours to purchase fresh produce—and how such a commute is rendered exponentially more challenging by the absence of sidewalks [48].

Residents of low-income areas are at the same time targets of marketing and product manipulations. The *Wall Street Journal* detailed how junk-food companies aggressively market discounted bags of potato chips to "inner-city African Americans and Latinos" [49]. Meanwhile, a *New York Times* investigative report uncovered how cigarette companies up the nicotine content of cigarettes [50] and public-health scholars describe how food corporations manipulate unhealthy products to enhance their addictive appeal [51].

Together, such findings suggest that attributes previously defined as "cultural" reflect the influences and actions, not just of persons, cultures, or attitudes, but also of the larger social and economic forces that influence diet, such as the distribution of resources, the presence or absence of food choices, targeted marketing, and the condition of infrastructure. Interventions that locate compliance or noncompliance in

clinic-level decisions risk overlooking, or indeed misdiagnosing, the impact of such structural forces on individual or cultural morbidities and mortalities.

Case 3: The Punitive Treatment of Women Who Use Drugs During Pregnancy
In fall 1989, the Medical University of South Carolina (MUSC), a state hospital serving an indigent minority population, began collaborating with Charleston police and prosecutors to address a perceived increase in babies testing positive for drugs [52]. Hospital and law enforcement officials instituted what was called the "Interagency Policy on Cocaine Abuse in Pregnancy," which allowed for nonconsensual drug testing of pregnant patients, reporting of results to police, and arrest of patients who tested positive on charges of child neglect or distribution of drugs to a minor. Lori Griffin, a patient who went to MUSC for prenatal care, was arrested pursuant to the Interagency Policy when she was eight months pregnant and locked up in the decrepit Charleston County Jail. She was transported weekly from the jail to the hospital for prenatal care in handcuffs and leg shackles. Three weeks after her arrest, she went into labor and was driven, still in handcuffs and shackles, to the hospital. Once at the hospital, she was handcuffed to a bed during the entire delivery [52].

The Interagency Policy resulted in the arrests of more than 40 patients [53], all but one of them black women. Police arrested some patients within days or even hours of giving birth and transferred them to jail in handcuffs and leg shackles. The Interagency Policy was halted five years after its inception, when the National Institutes of Health determined that it constituted an experiment on human subjects, which the hospital had been conducting without federally mandated protections for the women it was testing [54]. In 2001, the US Supreme Court ruled that the policy violated the women's constitutional right against warrantless searches [55]. Between 1985 and 1995, at least 200 women in 30 states were charged with maternal drug use, the vast majority of whom were poor and black and addicted to crack cocaine [56].

A health problem becomes a crime. How did a health problem—substance use during pregnancy—become a crime? And how did doctors become complicit both in portraying substance use by pregnant patients as a criminal offense and in facilitating their arrest and incarceration? As Roberts has previously shown, doctors made decisions about their pregnant patients within structure-level shifts in cultural representations of maternal drug use, generated by national drug policy, longstanding racial stereotypes, and contemporary media accounts [57]. The identification of a "crack epidemic" in the 1980s coincided with a 1988 study by the National Association for Perinatal Addiction Research and Education that found that 11 percent of newborns in 36 hospitals surveyed were affected by their mothers' illegal drug use during pregnancy [58]. Policymakers and the media located both problems in black communities and created a panic over gestational crack-cocaine exposure [59].

The diagnosis of prenatal substance use as a crime worthy of punishment depended on the race of the patients and a long-standing, disparaging mythology about black mothers. Attitudes originating in slavery painted black mothers as reckless reproducers whose degeneracy and neglect made them bad mothers [60-63]. In the 1960s, the stereotypical matriarch was held responsible for the disintegration of the black family, and the Reagan Administration promoted the image of the "welfare queen" who bred children just to fatten her welfare check and then wasted the money recklessly on herself.

The pregnant crack addict was added to the iconography of depraved black maternity during the so-called crack epidemic that began in the late 1980s. The media depicted mothers addicted to crack cocaine as careless and selfish women who put their love for drugs above concern for their children [64], as indicated by headlines like 1989's "Crack Babies: The Worst Threat is Mom Herself" [65].

In other words, they were portrayed as the exact opposite of good mothers—"promiscuous, uncaring, and self-indulgent" [66]. The US media also created the so-called "crack baby"—typically assumed to be black, although use of crack and other illegal drugs cut across racial categories—who was predicted to suffer not only permanent physical damage but to become a social pariah [59, 67]. In fact, medical research has since discredited the stereotypical portrayal of the "crack baby" as scientifically unfounded; researchers simply cannot determine authoritatively which of the many hazards poor black babies confront caused outcomes attributed in prior studies to drugs or negligent mothers [68]. Moreover, recent studies found little difference between poor children who were and were not exposed to crack cocaine in outcomes such as cognitive and language development, pointing to poverty as causing more serious harm [69]. The US media exaggerated the extent and nature of harm crack caused prenatally and erroneously suggested that the problem of maternal drug use was confined to the black community.

Medical professionals also contributed to a false portrait of pregnant crack addicts and their babies. The *Wall Street Journal* quoted a nurse as saying that "the most remarkable and hideous aspect of crack cocaine seems to be the undermining of the maternal instinct" [70]. Medical journals focused one-sided attention on studies showing detrimental outcomes from cocaine exposure. They published four times as many papers concerning prenatal cocaine exposure as had been published concerning the prenatal effects of heroin a decade earlier [71].

The caricature of the crack baby—trembling in a tiny hospital bed, permanently brain damaged, and on his way to becoming a criminal—supported a punitive approach to the problem of prenatal substance abuse. Legislators, policymakers, and prosecutors transformed a public health problem that affected all racial, ethnic, and socioeconomic groups into a crime resulting from black mothers' depravity that warranted harsh punishment.

Structural discrimination. In addition to the structural forces that created the crime of gestational drug exposure, a second structural context helped to determine doctors' decisions about their pregnant patients. Testing for and reporting of positive infant toxicologies were performed almost exclusively in public hospitals, like MUSC, that served poor minority communities. Private hospitals were less likely to have drug screening protocols and rarely reported their patients to the police. Several studies showed that health care professionals were far more likely to report black women who used drugs during pregnancy than their white patients [72]. A 1990 study in Pinellas County, Florida, for example, discovered that doctors were ten times more likely to report black women than white women to government authorities, despite similar rates of substance use [73].

The racially disparate treatment of prenatal substance use, in turn, helped perpetuate structural inequities. Black mothers' crack cocaine use became a primary explanation for high rates of black infant mortality, a trend long predating the crack epidemic. Identifying "bad" mothering as the cause of deplorable social conditions diverts attention away from the structural causes of health inequities and the need for social change.

The Clinical Implications of Addressing Race from a Structural Perspective
These brief case examples illustrate the complex ways that seemingly clinically relevant "cultural" characteristics and attitudes also reflect structural inequities, medical politics, legal codes, invisible discrimination, and socioeconomic disparities. Black men who appeared schizophrenic to medical practitioners did so in part because of the framing of new diagnostic codes. Lower-income persons who "refused" to eat well or exercise lived in neighborhoods without grocery stores or sidewalks. Black women who seemed to be uniquely harming their children by using crack cocaine while pregnant were victims of racial stereotyping, as well as of a selection bias in which decisions about which patients were reported to law enforcement depended on the racial and economic segregation of prenatal care. In this sense, approaches that attempt to address issues—such as the misdiagnosis of schizophrenia in black men, perceived diet "noncompliance" in minority populations, or the punishment of "crack mothers"—through a heuristic aimed solely at enhancing cross-cultural communication between doctors and patients, though surely well intentioned, will overlook the potentially pathologizing impact of structural factors set in motion long before patients or doctors enter exam rooms.

Structural factors impact majority populations as well as minority ones, and structures of privilege or opulence also influence expressions of illness and health. For instance, in the United States, research suggests that pediatricians disproportionately overdiagnose ADHD in white school-aged children [74]. Until recently, medical researchers in many global locales assumed, wrongly, that eating disorders afflicted only affluent persons [75].

Yet of late, medicine and medical education have struggled most with addressing ways that structural forces impact and disadvantage communities of color. As sociologist Hannah Bradby rightly explains it,

> hypothesizing mechanisms that include the micro-processes of interactions between patients and professionals and the macro-processes of population-level inequalities is a missing step in our reasoning at present…. [A]s long as we see the solution to racism lying only in educating the individual, we fail to address the complexity of racism and risk alienating patients and physicians alike [76].

Imparting Structural Awareness
It is of course the case that many lessons of history are learned only in retrospect. Interventions that arise out of good intentions, such as diagnostic criteria, dietary guidelines, or public-health safety precautions, are only later revealed to enhance structural disparities.

So too, the notion that health or stigma might be addressed by structural engagement has long functioned as common sense in many parts of the world [77, 78]. In the United States, however, an ideological framework centered on "individual choice" and "individual responsibility" often makes attempts to improve health infrastructures or health/race/wealth inequities more difficult [79].

Working to address this inadequacy, US medical and public health schools have recently begun a series of initiatives that attempt to make students aware of the structural components of race, socioeconomics, illness, and health. For instance, Hatzenbuehler, Link, and other public-health scholars [16] initiated a series of projects that explore the relationships between "structural stigma and health." They research how "macro-social" forms of stigma—termed *structural stigma"*—work invisibly to disadvantage stigmatized persons. Quesada, Hart, and Bourgois [80] use anthropological methods to analyze "structural vulnerability" to help physicians identify how political, economic, racial, and gendered social structures or hierarchies produce vulnerability for particular groups of patients.

Metzl's and Hansen's formulation of structural competency [5] similarly attempts to elucidate the relationship between the microprocesses of interactions between patients and doctors and the macroprocesses of population-level inequalities. Its interdisciplinary theoretical model emerged from a historical study of race and mental illness, brought to bear on medical education more broadly. The common aim of these initiatives is to develop more nuanced ways of identifying forces that influence health outcomes beyond the level of individual behavior and to systematically train health care professionals to take this larger structural context into account when treating patients.

Concrete Ways for Health Care Professionals to Become More Structurally Competent

Specific steps include:

1. *Be skeptical of race-based differences in diagnosis.* Findings such as the overdiagnosis of schizophrenia in African-American men [20] or of neurologic syndromes in Latin American populations [81] were initially held to result from biological differences among "ethnic" groups, only to later be discovered to have social or structural etiologies [82, 83].

2. *Create alliances between doctors and other professionals who serve the same vulnerable patients* to better address the multiple and entangled structural forces that affect patients' health. Programs that partner doctors and lawyers, such as the Medical-Legal Partnership in Boston, integrate legal assistance as a core component of patient health care to address the complex needs of low-income patients and ensure that they can meet their basic needs of food, housing, employment, family stability, and safety [84]. Medical-legal partnerships also "go beyond curing an individual" by working to improve conditions, such as dangerous housing, for entire communities [85]. Similarly, clinician Mindy Fullilove partners doctors with community-based organizations, urban planners, and architects to "treat" cities that have been "fractured and wounded" by racial segregation, urban renewal, and redlining policies that discriminate against inner-city neighborhoods, with the ultimate aim of creating healthy spaces for use by all city residents [86].

3. *Be creative in addressing extraclinical structural problems.* For instance, when medical students in Tennessee observed that minority and low-income patients failed to comply with instructions to take their medications after meals because they had to travel more than two hours to reach the nearest grocery stores, they created a social enterprise program called Nashville Mobile Market that partnered with community organizations to deliver food and other items to impoverished areas in refrigerated food trucks [87]. So too, Health Leads, an organization founded by Rebecca Onie while she was an undergraduate at Harvard University, provides resource desks in the waiting rooms of urban health centers. At these sites, doctors "prescribe" a wide range of basic resources, like food assistance or heating fuel subsidies, which Health Leads' volunteers "fill" [88].

4. *Learn from social science and humanities disciplines such as sociology, anthropology, history, and critical race theory to be more aware of the ways racism is embedded in institutions and operates apart from the blatant acts of individual bias.* As sociologist Eduardo Bonilla-Silva notes in his classic *Racism Without Racists*, seemingly colorblind policies that focus on individuals can leave in place the structural roots of racial inequality [21, 89].

5. *Draw lessons from other professions that have taken active steps toward addressing structural racism.* For instance, the National Association of Social

Workers convened a presidential task force subcommittee on institutional racism. The report produced by the subcommittee, "Institutional Racism and The Social Work Profession: A Call to Action," urged social workers to develop a "knowledge base, theories, and values to understand relevant social issues," understand historical notions of race and racism, and "look in the mirror" as a means of self-reflection [90]. The report ultimately called for a series of short- and long-term steps aimed at investigating and challenging structural racism, including "dialogue and inclusion/become partners and allies," "interpersonal capacity and collaboration," "social work organizations becoming antiracist entities," and "focus on client, community, and social policy" [90]. Meanwhile, the Grassroots Policy Project produced a workbook for "Dismantling Structural Racism" that includes a guide to "Racial Justice Policy Development" [91]. And the city government of Seattle, Washington, approved funding for "technical assistance" to Seattle's network of human services agencies to build their capacity to address structural racism [92].

6. *Speak up more vocally about structural issues that impact patients— politically*. In the current US political landscape, the loudest political voices that emerge from medicine are often unfortunately those that argue for dismantling many of the social-support networks and infrastructures that ameliorate the effects of structural stigma and racism [93]. Meanwhile, organizations such as Physicians for a National Health Program (PHNP) that speak out against the inadequacies of health insurance and advocate for single-payer national health insurance are frequently marginalized. Given this climate, the US vitally needs coherent voices from within medicine to argue for the medical and moral necessity of assuring equitable health and health care for everyone.

Conclusion
In sum, the call for structural competency encourages US medicine to broaden its approach to matters of race and culture so that it might better address both individual-level doctor and patient characteristics as well as the "institutional" factors that Carmichael rightly described as potentially "destructive of human life" [7]. Structural competency and other emerging approaches theorize ways to re-conceptualize social and economic influences on health so that they can be more effectively addressed by medical practitioners and professional organizations.

Promoting awareness of structural forces serves as a small first step toward recognition of the web of interpersonal networks, environmental factors and political/socioeconomic forces that surround clinical encounters. At the same time, it provides a means of encouraging new forms of coalition between knowledge about diseases and bodies and expert analysis of social systems in ways that, over time, might help put notions of structure at the center of US conceptualizations of the relationships between race, law, economics, illness, and health.

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FROM THE EDITOR
Treating Presymptomatically

On April 4, 1967, Dr. Martin Luther King, Jr., delivered his "Beyond Vietnam" speech at New York's Riverside Church. In this controversial address, Dr. King made the moral argument that the war on poverty was being threatened by the Vietnam War.

> There is at the outset a very obvious and almost facile connection between the war in Vietnam and the struggle I, and others, have been waging in America. A few years ago there was a shining moment in that struggle. It seemed as if there was a real promise of hope for the poor—both black and white—through the poverty program. There were experiments, hopes, new beginnings. Then came the buildup in Vietnam and I watched the program broken and eviscerated as if it were some idle political plaything of a society gone mad on war, and I knew that America would never invest the necessary funds or energies in rehabilitation of its poor so long as adventures like Vietnam continued to draw men and skills and money like some demonic destructive suction tube. So I was increasingly compelled to see the war as an enemy of the poor and to attack it as such [1].

Some closest to Dr. King questioned the wisdom of making such a link, concerned that it would undermine his role as a civil rights leader. *Life* magazine called the speech "demagogic slander that sounded like a script for Radio Hanoi" [2], and the *Washington Post* declared that King had "diminished his usefulness to his cause, his country, and to his people" [3]. For many commentators at the time and most likely even today, a preacher simply has no place in the world of foreign policy.

In this month's issue of *Virtual Mentor* (*VM*) we explore the ethical landscape that shapes our understanding of physicians' role in addressing the myriad nonmedical factors that affect human health, such as poverty and economic justice, climate change and environmental stewardship, and marriage equality and human rights. Like the critics of Dr. King's anti-Vietnam War fight, there are some who think physicians have no obligation to address nonmedical factors that may negatively affect the health of their patients. With little authority or expertise to speak or act on such "non-bedside" matters, there is the danger that well-intentioned physicians may overreach. On the other hand, these social, economic, and environmental ills threaten the health and welfare of the public. Ignoring them would be like treating the symptoms of a disease and not its root causes, and that is not an ideal way of practicing medicine.

In this *VM* issue, authors examine the responsibilities and limitations of physicians' acting as agents of change in matters that go beyond the bedside but have profound impacts on the public's health.

What considerations should physicians take into account when deciding whether to speak out on a health-related matter on which they may have little or no expertise? Reflecting on a personal situation that raised this exact dilemma, Matthew Wynia provides some practical insights on what physicians should weigh before deciding to speak up. In the same vein, what kind of on-site rules and policies should medical schools and residency programs have for students and housestaff who want to voice their views on social policy debates like same-sex marriage? Mark Kuczewski offers ethical guidance for medical faculty and administrators that is grounded in the role of physicians and the medical profession in educating the public about the health consequences of laws and regulations. Martin Donohoe and Gordon Schiff explore the tension that arises between patients and physicians when they have different stances on social policy, and they suggest how to minimize the possible adverse effects of those differences on the therapeutic relationship.

Can a propensity for activism among physicians be taught? Joshua Freeman examines the importance of physician social activism and the need for physicians to acquire the relevant knowledge and skills to be more effective advocates. While there is no accreditation standard requiring medical educators to impart various "activism" competencies, Bharat Kumar recounts how the Robert Wood Johnson Clinical Scholars program served for four decades as an educational springboard for physicians who sought to be agents of change in their communities. Rebecca Lunstroth and Eugene Boisaubin share insights on using team-based learning to teach medical students about topics such as social justice, resource allocation in health care, and social determinants of health.

Several articles in the issue discuss health-care-related social advocacy by physicians. Joseph Gregorio examines the legal landscape in which physicians who recommend medicinal marijuana to patients find themselves. Cristina Richie explores the relatively short history of efforts to quantify and reduce the environmental impact of health care through the lens of seminal publications on the topic. Philip Perry highlights current efforts by hospitals and other medical organizations to reduce their carbon footprints.

Other articles discuss physician activism and service outside the world of medicine. Ira Helfand, Antti Junkkari, and Ogebe Onazi discuss physician efforts to end the use of nuclear weapons and remind our readers of the devastating impact their use would have on humanity and the environment. In this month's podcast, Rajiv Shah reflects on how being a physician informs his role as the administrator of the United States Agency for International Development. John Dittmer provides a historical account of physicians who volunteered to care for civil rights advocates who braved the segregated South during "Freedom Summer" in 1964. Finally, Catherine Thomasson

argues that the only way for physicians to really address the causes of their patients'
conditions is to serve as agents of social change.

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Virtual Mentor

ETHICS CASE
Advocate as a Doctor or Advocate as a Citizen?
Commentary by Matthew Wynia, MD, MPH

Dr. Gonzales, an orthopedic surgeon, enjoys mentoring medical students who are contemplating a career in his specialty. He is also involved in trying to get more students from minority backgrounds interested in becoming physicians and is frequently invited to speak at the local high school near the academic center where he is on staff.

On a recent "Doctors Back to School" event at Riverside High, Dr. Gonzales learned from several teachers that the school board was contemplating closing the school at the end of the academic year because of poor student performance on statewide tests.

"I can't believe the school board thinks closing down this school is a good thing for our students," said Mrs. Winters, a science teacher. "You've been coming here for several years now, Dr. Gonzales. You know how challenging it's been for us to build a safe learning environment for these kids. We're just starting to turn the corner, and we may have the rug pulled out from under us. Look—many of us think of you as one of us. There's going to be a school board meeting in a few weeks, and many of the teachers are planning to attend. Given your position as a respected physician in this community, I think it would be extremely helpful if you came to this meeting and spoke on our behalf." Dr. Gonzales gave a slight nod, but said nothing, not quite sure how to respond to Mrs. Winters's invitation.

By the time Dr. Gonzales was telling his wife about the invitation that evening, he had come pretty close to a decision. "At first, I wasn't sure if I should attend this school board meeting," he said. "But the more I think about what those teachers are doing... Many of the students come from families whose primary language is Spanish, and it's important that many of the teachers there are bilingual. Those state test grades can't be the most important part of school, and it can't be good for these kids to be bused to another school and a neighborhood that is unfamiliar to them."

His wife was concerned. "Honey," she said, "You should think twice about attending this meeting. I know that you have a positive impression of the school, but you're not an education expert."

Commentary
When commenting on social issues, physicians trade on the honor of our profession, benefiting from the public's assumption that the wisdom won of caring for so many at

*their most vulnerable imbues us with some privileged understanding of collective
need.*
Ford Vox, MD [1]

It has been more than a decade since the summer of 2004, when I decided to testify
in front of the Evanston, Illinois, city council in a grassroots effort to close the local
hospital's incinerator.

We had recently moved to a home just three blocks from a hospital with a stubby
smokestack connected to an incinerator and boiler. Sometimes we could smell it, and
it was worrisome to us as the parents of three young boys. I knew what went into the
incinerator—essentially everything, including plastics, metals, and all manner of
medical detritus. Even before doing any in-depth research on the issue, I knew
medical waste incinerators produce dioxins, mercury, small particulates, and many
other potentially harmful toxins. It might have been a state-of-the-art system, but
there are no safe levels of exposure to some of these emissions, and operating an
incinerator in the heart of a busy residential area, surrounded by schools and homes,
seemed ill-advised at best.

A new friend who had been trying to get the hospital's attention about this for years
approached me, and we called together a neighborhood meeting. We invited an
expert from a local school of public health who described the issues, informed us that
the vast majority of hospital-based medical waste incinerators nationwide had
already closed due to concerns like ours, and encouraged us to get organized.

So we did. We formed an ad hoc group, named it "No Burn Evanston," and started to
plot strategy. In only ten days, we gathered more than 2,000 signatures in support of
a proposed ordinance to close the incinerator. We submitted the resolution to the city
council. When we hit resistance, we started making lawn signs.

Like me, Dr. Gonzalez has every right, as a citizen and an individual working with
the staff and students at Riverside High, to testify in front of the local school board.
Being a physician doesn't mean giving up basic first amendment rights of free
speech and protest. But his wife is also right to be concerned that Dr. Gonzalez is at
risk of using his medical credentials inappropriately.

I certainly worried about this when deciding whether to take a public stance on
closing the waste incinerator. I had no special expertise in hospital management or in
the regulatory and logistical issues hospital leaders raised when they objected to the
proposed timeline for closure. Yet I knew that, in presenting myself as a physician,
my remarks would probably be taken by the city council and public not just as the
views of a thoughtful citizen, but as an assertion that I had expertise relevant to the
situation at hand.

This raises the first question any physician should consider when contemplating whether and how to engage in public advocacy. Is the issue one to which my training and experience as a physician might be directly relevant?

If the answer is no, then invoking one's medical training when presenting an opinion is simply cloaking one's personal views in the mantle of respectability that being a doctor provides. When this is the case, it would be better to speak out simply as a concerned citizen, avoiding mention of medical training that isn't relevant to the issue, or not to engage the issue publicly at all.

On the other hand, if medical expertise is relevant, then taking a public stand as a physician comes with an obligation to deliver medical information as one would in any other professional encounter—with deliberate reason, truthfulness, and care. Speaking in public as a physician is, in essence, serving as a medical expert. It is the public policy equivalent of taking the stand as an expert in a trial. There is an obligation to uphold our profession's honor, integrity, and decorum when speaking out as a medical expert.

In particular, policy debates can be emotional (not unlike some medical decisions). Physicians can and should present information in ways that will be conducive to reasoned decision making. Physicians should always avoid overheated rhetoric when presenting medical information, and this includes occasions when they are doing so as an act of political advocacy.

It also bears mention that it's not always straightforward to determine the extent to which specific aspects of medical expertise matter to an advocacy issue. I, for example, acknowledged that I don't know much about medical waste management, loading dock design, or engineering, but I have training in medicine and public health. I have a basic understanding of toxicology, and I could (and did) read, understand, and translate some of the relevant medical and public health literature for my neighbors and for the city council. In this regard, it isn't necessary to have specific expertise about all aspects of an issue to make a meaningful contribution to a political debate—in this case, sufficient education to read the public health literature and gather information was what was needed. When presenting as an expert, it's best to stick to areas where, in fact, you have some expertise.

Dr. Gonzalez, as his wife rightly notes, does not have expertise in public policy or school reform. But he does have direct experience working with students at this school around medical issues. He could limit his advocacy to a careful description of these experiences and how they might bear on the school board's decision. Within these limits, presenting his views as those of a concerned local physician seems not only appropriate but unavoidable, since he could not talk about his firsthand experiences in the school without mentioning his profession.

The second question I asked myself in considering whether to speak out on the incinerator was whether taking a public stand on the issue could backfire or could

even harm my ability to provide quality care to patients or otherwise carry out my regular work.

These might seem like unlikely outcomes, but the reality is that whenever physicians speak out in public there is a chance they will have to cede control of the narrative they'd like to present. What if the press becomes more interested in the local doctor and his or her motivations for speaking out, perhaps to the detriment of the cause? What if the doctor's patients are divided on the issue—will they continue to view him or her in the same way or with the same level of trust? What if the story becomes about the doctor's level of expertise, or lack thereof, on the issue?

These concerns are heightened when doctors speak out on issues that do not bear directly on health and medicine. Even if a protestor doesn't call specific attention to being a doctor, medicine has such a strong presence in society that reporters might focus on the medical angle, or they might try to add one. As the physician Ford Vox has written, "the public, and the reporters who keep them informed, will always attempt to comprehend [physicians'] actions in the context of the greater medical narrative" [2].

Again, these considerations can be nuanced. In my situation, for example, I felt my medical and public health training was relevant to some of the issues under discussion, so I introduced myself to the city council as a physician. But I did not call attention to my role at the American Medical Association, and when one reporter asked I told him not to use my AMA position in his story (despite that fact that the AMA had policy on environmental stewardship and safe disposal of medical waste [3-5]) because I was not acting on its behalf. Calling attention to my AMA position might have raised the profile of the story, but it also wasn't directly relevant and could easily have become distracting and counterproductive.

Dr. Gonzalez should consider whether his patients might be divided on the closure of the school and whether his taking a public stand might alienate some of them. He should also consider whether any other affiliations he has might pose a risk of confusing or distracting the school board or the public. If present, these considerations might cause him to avoid providing testimony or to frame it more carefully.

After 3 months—during which time I spoke to the council 3 times—the governor got wind of our efforts and made a visit to Evanston to back us up. He pushed the Illinois Environmental Protection Agency to work with all hospitals in Illinois to shut their medical waste incinerators and he threatened a legislative solution if this didn't work. In August, the council voted (8-1) to ban medical waste incineration in Evanston by the end of October [6]. The hospital wasn't happy with the short timeline, but they complied.

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ETHICS CASE
A Call to Service: Social Justice Is a Public Health Issue
Commentary by Martin Donohoe, MD, and Gordon Schiff, MD

Dr. Gregory has been in family practice in Allentown, Pennsylvania, for more than 30 years, during which time he has cared for three generations of local residents and earned a place as a respected leader in the community.

Over the past couple of years, Dr. Gregory has grown increasingly concerned about the impact that human activity through the burning of fossil fuels has had on the climate and environment and, in turn, on the health of the public. After reading in the peer-reviewed literature and studying the science behind global climate change, Dr. Gregory decided to pen a letter to the local newspaper advocating for policies aimed at reducing greenhouse gas emissions, including the installation of carbon-capture technologies in coal-fired power plants.

Mr. Peterson, a longtime patient of Dr. Gregory, mentions this letter during a routine visit. After they have discussed how Mr. Peterson is doing—taking all of his medication as prescribed, but admitting that he could do better with what he eats—Mr. Peterson says, "I read the letter to the editor you wrote in the *Morning Call* last week, Doc." Mr. Peterson is not employed in the mines, but he has several family members and friends who work in the coal industry. "I'm concerned that all this talk about global warming will result in less coal being used and that will mean fewer jobs for us," Mr. Peterson says. "And letters like yours, especially from a doc, don't help matters."

Dr. Gregory replies, "I realize that there might be financial hardships for some, but it will cost all of us more, economically and healthwise, in the long run if we ignore the problem and do nothing." But after Mr. Peterson leaves, Dr. Gregory wonders if he should have prioritized his patients' livelihoods above more general public health concerns.

Commentary
"A physician is obligated to consider more than a diseased organ, more even than the whole man. He must view the man in his world."
Harvey Cushing [1]

"Medical education does not exist to provide students with a way of making a living, but to ensure the health of the community.... If medicine is really to accomplish its great task, it must intervene in political and social life."
Rudolph Virchow [2, 3]

This case raises three important questions: When physicians and patients disagree about social issues, can the therapeutic alliance weather that disagreement? Can and should physicians, in addition to caring for their patients, be advocates for broader social change? If, as we argue, the answer is "yes," how should we go about doing so in a way that does not have detrimental effects on patient care and the doctor-patient relationship?

Discussing Controversial Topics with Patients
Inevitably, conversations and even conflicts about sensitive political and social issues will arise in the clinical setting, and it is likely and natural that there will be differences of opinion. Physicians must be mindful of power dynamics (which often are further compounded by class, race, gender, and other inequalities) and the need for nonjudgmental respect for patients and tolerance of alternate viewpoints. It would be wrong for a physician, no matter how passionately he or she felt about a particular issue or how just the cause, to disrespect patients and leverage or exploit the doctor-patient relationship, whether it is to win votes for a candidate or impose particular views on abortion.

Nevertheless, we disagree with the teaching that physicians must be "value-neutral" and feel that transparent, respectful conversations with patients can be more helpful than avoiding topics of disagreement. Physicians must not only express our own views; we must be open and receptive to our patients' experiences and views, ever mindful that we also have a responsibility to grapple with the conditions they face. Such discussions may even conclude with a respectful, nonjudgmental "agreeing to disagree," which can be useful in discussing other topics (from the appropriate prescribing of antibiotics or opioids to the necessity of an MRI for a back sprain or the doctor's willingness to write a disability letter). If done sensitively, engagement on contentious topics can help, rather than hinder, the patient-physician relationship.

During Mr. Peterson's office visit, Dr. Gregory should focus respectfully on health issues and address Mr. Peterson's specific concerns and questions. He should listen and respond nonjudgmentally to Mr. Peterson's concerns, recognizing the inherent power imbalance of their relationship and trying not to increase it. His response should be conversational, rather than proselytizing, based on sound science, and rooted in concern for his patient, his community, and future generations. He might possibly respond to Mr. Peterson by saying: I respect your views, and I hope you can respect mine. Scientific evidence indicates climate change is an urgent problem, and I feel strongly that our society must address it, but it's tough when tackling it seems to be at odds with some people's economic security. No matter what, whether we agree or not, I will still be your doctor and provide you, as I do for all my patients, with the best care I possibly can, while at the same time advocating for my patients and a better world for us all.

Why Activism?
Physicians can learn much from their patients and patients' struggles with illness, poverty, sexism, or racism. We have a responsibility to grapple with the conditions

our patients face. Caring deeply for and about our patients should naturally lead us to contemplate how we can help them in the broadest and most effective ways—ways that would entail ameliorating their problems through a public health approach to practicing medicine.

Many common health problems are rooted in public health, environmental, economic, and social policies. These include reactive airway disease (tobacco, ozone, air pollution); obesity (farm policy, school lunch quality, fast food advertising, food labeling); heart disease (pollution, smoking, obesity, unavailability of affordable healthy foods and safe places to exercise); depression (poverty); reproductive issues (abstinence-only sex education and lack of access to contraception and pregnancy termination); and injuries caused by violence (poverty, crime, criminal justice system policies, guns). Lower life expectancy, higher rates of infant and child mortality, poorer self-reported health, higher rates of AIDS, depression, obesity, and crime, and diminished trust in people and institutions are all associated with income inequality. Un- and underinsurance, militarism and war, climate change, lack of access to potable water and sanitation, unsustainable agricultural practices (use of water and soil, slash-and-burn agriculture, overuse of antibiotics, and governmental agriculture policies), corporate malfeasance, and international trade agreements also contribute greatly to morbidity and mortality and cost society trillions of dollars [4-12].

Classifying mortality by root social causes illustrates the importance of a public health approach to medical care. For instance, in 2000, there were 193,000 deaths attributed to acute myocardial infarction, 168,000 to cerebrovascular disease, and 156,000 to lung cancer. But when one group of researchers examined the actual contributing causes, they ended up with very different results: they found that 245,000 deaths were attributable to low education, 162,000 to racial segregation, 162,000 to low social support, 133,000 to individual-level poverty, and 119,000 to income inequality [13].

A few studies show how effective changes in social policy could lead to changes in health outcomes. One group calculated that equalizing the mortality rates of whites and African-Americans would have averted 686,202 deaths between 1991 and 2000, whereas medical advances over the same period averted only 176,633 deaths [14]. Another calculated that 880,000 deaths per year would be averted in the US if the country had a smaller income gap, like those of many Western European nations, and their stronger social safety nets [15].

It's preventive medicine writ large: injustice, oppression, war, environmental damage—all affect our patients. As professionals dedicated to healing and health, physicians should advocate on behalf of the vulnerable and disenfranchised (including the poor, racial and ethnic minorities, lesbian/gay/bisexual/transgender people, children, the disabled, HIV-infected patients, those with mental illness, undocumented immigrants, the homeless, victims of violence, and prisoners), whose voices are often unheard and whose oppression has medical consequences.

Activism in Action
Often attributed to Nobel-Prize-winning author Gunter Grass is the saying, "The job of a citizen is to keep his mouth open" [16]. This applies more than ever to physicians, who, because of the MD after their names, are afforded a great deal of respect, warranted or not, in a time when public acceptance of scientific information is threatened by politically and ideologically motivated obfuscation. Public trust of physicians is high, and doctors are considered a credible source of information [17]. This can open doors for them to meet with elected representatives, influence policy through such means as letters to the editor, and act as spokespeople for important causes and media contacts for questions relevant to public health. Doctors need not be experts on every topic, but should take an active and informed interest in the issues, offer recommendations based on sound science, be honest when unable to answer a question, and offer to find information that is not at their fingertips. They should actively oppose government and religious mandates that limit the provision of scientifically supported advice and treatments to patients [18].

History provides us with many examples of health care professionals who were activists, including Rudolph Virchow, Thomas Hodgkin, Margaret Sanger, Albert Schweitzer, Florence Nightingale, and Salvadore Allende. Activism takes time and can be associated with consequences for one's personal life [5]. For some, activism may on occasion involve breaking the law (as did famous activists such as Martin Luther King and Nelson Mandela), but only after a thorough consideration of alternatives and consequences. Activism could cause one to become the target of criticism (from colleagues, patients like Mr. Peterson, or other members of the community), and in some cases could even lead to threats of (or, rarely, actual) physical violence, and thus requires a degree of courage moderated by self-protection. Pastor Niemoller, who spoke out on behalf of victims of the Holocaust, was imprisoned by the Nazis at Sachsenhausen and Dachau concentration camps. Others who sought radical changes in health care, from Ignaz Semmelweis to John Snow to Virchow, were regarded as troublemakers in their lifetimes. Albert Schweitzer was ridiculed; Bernard Lown, cofounder (with Russian cardiologist Yevgeni Chazov) of the Nobel-Peace-Prize-winning organization International Physicians for the Prevention of Nuclear War, was labeled a Soviet sympathizer; and David Gunn, George Patterson, John Britton, George Tiller, and other physicians whose practices included pregnancy termination have been murdered [19, 20].

Today many physicians labor, often anonymously, in support of the disenfranchised and a better world for all. Others work through well-known physician-activist organizations (such as Physicians for Human Rights, Doctors without Borders, Physicians for a National Health Plan, Physicians for Social Responsibility, and the Doctors Reform Society) and nongovernmental organizations, which focus on environmental degradation (Union of Concerned Scientists), reproductive rights (Planned Parenthood), and myriad other issues [21].

Medical Education for Social Responsibility
Despite the obvious relevance of social issues to patient health, physicians as a group are not particularly engaged in civic redress of injustice and oppression: more than half of physician organizations are doing little to ameliorate racial and ethnic health disparities [22], physicians tend to vote less than members of other social groups [23], and, when physicians lobby Congress, their efforts tend to focus on issues that affect them professionally and financially [24], rather than those that affect their patients' health [25]. One way to try to change this may be in changing the training physicians receive.

The schism between public health and medical education and training dates back to the early twentieth century—with medical schools becoming more focused on biochemical mechanisms of disease and drug therapies than on societal issues—and has yet to be healed. Social issues and public health are covered inadequately in US medical schools [4, 5]. Furthermore, ethics training inadequately addresses the psychological, cultural, socioeconomic, occupational, and environmental factors that have health consequences for individuals and populations. Despite the Institute of Medicine's recommendation that one-quarter to half of medical students earn the equivalent of a master's degree in public health, most do not; indeed, only 10 percent of students at US public health schools are physicians, down from 60 percent in the 1960s [26]. Most medical students and residents today do not engage in activism, despite having begun their medical school careers full of enthusiasm and with typically strong records of volunteer work or public service. This may be due to burnout and cynicism or to barriers such as insufficient time, stress, and the need for rest.

But professional societies have developed policies regarding education for advocacy and activism. In 2001, the American Medical Association adopted the "Declaration of Professional Responsibility: Medicine's Social Contract with Humanity" [27]. This encourages physicians to "educate the public and polity about present and future threats to the health of humanity and advocate for social, economic educational and political changes that ameliorate suffering and contribute to human well-being." The Canadian Medical Education Directions for Specialists (CanMEDS framework) of essential physician competencies requires physicians to be trained to use their expertise and influence as advocates for advancing the well-being of individual patients, communities, and populations [28].

There are many pedagogical approaches to augmenting training that encourages physician activism [4, 5, 29]. These include more curricular time devoted to community health; elective rotations in nontraditional settings (jails and prisons, domestic violence shelters, homeless clinics) and overseas; improving ethics training to include a major focus on social justice; research-based health activism courses (like those pioneered by Public Citizen's Health Research Group); residency programs devoted to social medicine (e.g., Montefiore Hospital/Albert Einstein University, the University of California at San Francisco, and the University of Miami) and global health (e.g., Harvard and University of California, Los Angeles);

the use of the humanities and social sciences (including literature, photography, and history), and lobbying/media training [5, 30, 31].

Medical student and resident selection committees should place more emphasis on applicants' life experiences, breadth of courses taken and service activities pursued, and potential as future activists and leaders. Schools of medicine and residency training programs must recruit qualified faculty and augment their curricula to include a greater emphasis on activism. This will involve a closer association with adjunct faculty who are working in the community and with nongovernmental organizations and who should be compensated appropriately for their efforts.

Conclusions
Unless we can overcome the daunting challenges of building bridges between our clinical work with patients and the preventive public health mission that Virchow prescribed for us, we are doomed to find irrelevance and futility in our efforts to help our patients. Fortunately, collective advocacy for societal change and personal advocacy on behalf of individual patients cross-fertilize and nourish each other. Advocacy takes time, courage, and patience; the slow process of societal change can be frustrating, but the long-term rewards are great. It behooves us to remember that "the arc of the moral universe is long, but it bends towards justice" [32] and to consider Margaret Mead's encouraging words: "Never doubt that a small group of thoughtful, committed people can change the world. Indeed, it is the only thing that ever has" [33]. As an African proverb reminds us: "If you think you are too small to have an impact, try going to bed with a mosquito in your tent."

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Virtual Mentor

ETHICS CASE
Medical Students and Rights Campaigns
Commentary by Mark Kuczewski, PhD

Bill, a third-year medical student, had just started his internal medicine clerkship rotation. Seriously considering a career in primary care medicine, Bill was eager to be exposed to as many clinical scenarios as possible during this two-month rotation.

The first patient he was assigned to care for was Mr. Wolfe, who came to the emergency room with shortness of breath and was subsequently admitted for congestive heart failure (CHF). Mr. Wolfe responded well to medical treatment, and Bill was able to learn firsthand how to care for CHF patients. Because Mr. Wolfe was 68 and this was his second hospitalization in the last 9 months for CHF exacerbation, the resident physician in charge wanted Bill to make sure that Mr. Wolfe understood the importance of taking his medications and limiting his sodium intake. As a result of their many conversations, Bill developed a good rapport with Mr. Wolfe.

On the day that Mr. Wolfe was being discharged, Bill visited to see if he had any questions and to wish him well. Mr. Wolfe thanked Bill for his attention and care and before parting ways said, "I've been meaning to ask you about that button you've been wearing."

Bill explained, "It's a Human Rights Campaign pin. The HRC works to ensure that gay and lesbian Americans have equal basic rights, including the right to marriage."

Mr. Wolfe paused before muttering "Uh, OK. Thanks for stopping by."

Later that day, Bill told his classmate Anna about his conversation with Mr. Wolfe, saying, "It was so disappointing. I really like Mr. Wolfe and felt like we had a great relationship. Then he asked about my pin and acted weird when I said what it was." Bill added that he thought HRC's mission was an important one for doctors to support because social stigmatization of gay, lesbian, bisexual, and transgender people could have detrimental health effects.

Anna said, "But if it makes some patients uncomfortable, maybe it's better if you just stop wearing the pin at work."

Commentary
When approaching this case, it's important to begin by ruling out a common piece of nonsense. We often hear people refer to any controversial issue as "political," and

this characterization seems intended to imply that all positions on the issue are mere matters of opinion and the topic has no place in polite company and certainly not in professional relationships. Of course, as virtually anything can become the subject of partisan politics and punditry, to buy into this rhetorical ploy would nullify the ability of the medical profession to advocate for measures to foster public health. Such straightforwardly appropriate matters for advocacy as food labeling and measures to encourage nutritious eating and a health-promoting lifestyle are all mediated by public policy and become the subject of political discourse. The medical profession cannot be required to refrain from advocacy that promotes the general health and well-being of the populace and still be worthy of its status as a profession. The profession must use its expertise and influence to promote sound public policy related to the health of society [1]. While any particular issue can seem too controversial at the time, in the long run a consistent record of advocating for the common good is likely to build public trust [2].

We can easily see this in regard to once-controversial issues that we now view through the tincture of time. The medical profession in the United States reflected our nation's racism for many decades in its disparate treatment of black and white patients, and the American Medical Association allowed its Southern member states to segregate the profession [3]. While this may have been politically noncontroversial at the time, this history is shameful in retrospect. Medicine should have led in disregarding race in an effort to promote the health and well-being of all.

Conversely, we admire the leadership of the medical profession in treating patients with AIDS at a time when the general public was fearful and prone to stigmatizing the sufferers. There can be little doubt that the courageous action of physicians who often lost their other patients when it became known that they treated patients with HIV promoted the public health by working toward an understanding of AIDS as a disease in need of treatment and by educating the public on appropriate ways to prevent transmission. So we must not rule out that physicians and medical students can and should sometimes risk being seen as "political" in order to promote health.

Of course, physicians and medical students should use practical judgment in deciding when and how to engage the public about a particular issue. To wear a button for each and every cause runs the risk of alienating patients while producing no real impact. It is difficult to judge whether Bill's wearing of this button and his way of explaining it to patients like Mr. Wolfe who make inquiries has crossed this line. I'm not sure that we can draw bright lines, but I can suggest two commonsense guideposts that emanate directly from the role of the medical profession as promoting health and educating the public regarding the role of the profession in doing so.

1. The more closely an issue is connected to the good of patients and the health of the public, the more justifiable is the introduction of this expression in the clinical setting.
2. Institutional values and mission-critical information should be expressed in a form that maximizes potential efficacy.

Evaluating Bill's actions in light of these principles raises some concerns. First, while Bill understands his wearing of the button in terms of creating a welcoming environment in the clinic for members of the LGBT community, it's unlikely that Mr. Wolfe understood Bill's response in this light. Bill mentioned human rights, but Mr. Wolfe may well have focused on Bill's mention of the same-sex marriage issue, whose relevance to health care might not be obvious. Bill's response would adhere more closely to the guideposts if he had mentioned an implication relevant to the health sphere, such as the right to have the person who knows you best make your health care decisions when you are unable to do so, i.e., one of the reasons why marriage equality is seen as a positive from a health care perspective.

Similarly, the efficacy of buttons being worn by individual practitioners may be questionable. Does allowing each medical student and health care professional to wear any button he or she wishes promote the public health? Or is it more likely that the benefits will be outweighed by misunderstandings as happened in this case? Will particular individuals misuse the privilege by expressing biases and views that may not promote the health of patients and the public? Thus, it certainly seems reasonable for a health care institution or a medical school to be fairly restrictive in its policy regarding this matter. As a result, many institutions might justifiably ban such expressions from the white coat. However, as our medical schools and residency programs should foster physician advocacy, we hope that educators will seek a middle way.

For instance, medical schools and teaching hospitals might involve student groups in the deliberative and policymaking process. Or they might choose to allow only symbols and expressions that are part of coordinated public information campaigns by chartered student organizations or professional societies. These would, of course, still be subject to the approval of the hospital, which would want to ensure that such expressions were consonant with the values of the institution and expressed appropriately.

In sum, Bill did little that is blameworthy. We must accept that medical students are being prepared for a role that comes with multiple complex duties. Duties to patients and duties to promote the general health of the public can be in tension and must be appropriately balanced. It's easy to miss the mark in one direction or another. It is the role of educational institutions to foster mechanisms for developing policies and approaches for striking these balances. Resolving the balance by ignoring one set of duties will not do for our contemporary medical education institutions.

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THE CODE SAYS
AMA *Code of Medical Ethics* Opinion on Physician Advocacy

Opinion 9.025 - Advocacy for Change in Law and Policy
Physicians may participate in individual acts, grassroots activities, or legally permissible collective action to advocate for change, as provided for in the AMA's Principles of Medical Ethics. Whenever engaging in advocacy efforts, physicians must ensure that the health of patients is not jeopardized and that patient care is not compromised.

Formal unionization of physicians, including physicians-in-training, may tie physicians' obligations to the interests of workers who may not share physicians' primary and overriding commitment to patients. Physicians should not form workplace alliances with those who do not share these ethical priorities.

Strikes and other collective action may reduce access to care, eliminate or delay necessary care, and interfere with continuity of care. Each of these consequences raises ethical concerns. Physicians should refrain from the use of the strike as a bargaining tactic. In rare circumstances, individual or grassroots actions, such as brief limitations of personal availability, may be appropriate as a means of calling attention to needed changes in patient care. Physicians are cautioned that some actions may put them or their organizations at risk of violating antitrust laws. Consultation with legal counsel is advised.

Physicians and physicians-in-training should press for needed reforms through the use of informational campaigns, non-disruptive public demonstrations, lobbying and publicity campaigns, and collective negotiation, or other options that do not jeopardize the health of patients or compromise patient care.

Physicians are free to decide whether participation in advocacy activities is in patients' best interests. Colleagues should not unduly influence or pressure them to participate nor should they punish them, overtly or covertly, for deciding whether or not to participate.

Issued December 1998 based on the report "Collective Action and Patient Advocacy," adopted June 1998; updated June 2005 based on the report "Amendment to Opinion E-9.025, Collective Action and Patient Advocacy," adopted December 2004.

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MEDICAL EDUCATION
The Robert Wood Johnson Clinical Scholars Program: Four Decades of Training Physicians as Agents of Change

Bharat Kumar, MD

The 1960s were a transformative decade in the history of the United States: the civil rights movement, opposition to the war in Vietnam, environmentalism, and a host of other causes inspired an entire generation of citizens to become more active in shaping the world around them. At the same time, the government was expanding tremendously with the establishment of programs such as Medicare and Medicaid to help provide health care to America's elderly and poor.

Physicians were looking closely at these historic events and noting that the medical community had yet to come to terms with this new world of activism [1]. Among them were five medical school professors, who, after gathering at a national meeting in the late 1960s and noting the detached and passive model of medical practice promulgated in medical education at the time, proposed a pilot program called the Clinical Scholars Program (CSP) to train physicians to become agents of change, not only in the clinic and in the hospital, but also in communities, in classrooms, and in the halls of power [2].

For the first three years of its existence (1969-1972), the program was based at five universities and funded jointly by the Carnegie Corporation and the Commonwealth Fund. In 1972, it found a new home in the Robert Wood Johnson Foundation (RWJF), an organization whose recent philanthropic focus on hospitals and medical care coincided with the CSP's aims of improving the quality of American health care [3, 4].

While the leadership, participating institutions, and specific structure of the program have changed over the past four decades, the objectives have remained largely the same: to provide nonbiological training to physicians in a variety of specialties to expand access to health services, improve quality of care, and develop a base of evidence to inform national health care policy [3]. After training 1,200 scholars over the past 45 years, the Robert Wood Johnson Clinical Scholars Program is accepting its final cohort in 2014 [5]. It leaves behind a legacy of inspiring two generations of physicians to venture beyond the clinic and the hospital to be agents of change for the health care of all Americans.

Clinical Scholars Program Curriculum
Admission to the Robert Wood Johnson Clinical Scholars Program has been selective. In 2013, 24 scholars were selected out of a pool of 70 total applicants [6].

Approximately a quarter of applicants had completed prior graduate work in public health, and many others had been active in organizations like the American Medical Student Association and the American Medical Association (telephone interview with Desmond Runyan, MD, November 22, 2013). And, while in earlier decades the majority of clinical scholars were trained in internal medicine, family medicine, or pediatrics, the program has more recently attracted trainees from a broader scope of fields [6].

Currently, the program has four training sites, at Yale University, the University of Pennsylvania, the University of Michigan, and the University of California Los Angeles, with the national program's offices based at the University of North Carolina. Additional support is provided by the US Department of Veterans Affairs, which has collaborated with the RWJF since 1978 to fund the stipends for positions in each cohort and to provide both clinical and research resources as well as mentorship at affiliated Veterans Affairs medical centers. More recently, the training universities have contributed to funding positions for the program [8]. Altogether, the investment in each scholar has been upwards of $500,000 [9].

While variability exists among the four programs, all involve two years of training, after which a master's degree is awarded. The first year consists largely of graduate-level coursework in subjects such as health policy, health economics, epidemiology, history, and statistics to enable scholars to better understand the context of the health care system and to introduce them to research methods in health services research. Scholars can also elect to take a variety of other courses [10].

It is also during the first year that the scholars begin to work on their research and policy projects. While community engagement has been one of the cornerstones of the program from the time of its inception, since 2005 there has been an added focus on community-based participatory research (CBPR) [8]. In such projects, scholars collaborate closely with community-based partners, from the conception of the idea to drafting the research protocol, executing the plan, and disseminating results [11]. Each scholar is expected to learn CBPR skills, and some scholars' final projects involve CBPR [7, 10, 12].

The Clinical Scholars Program also emphasizes leadership development throughout the two years of training. Leadership training sessions, visits to government sites, and invited presentations on leadership are integrated into the curriculum. About one-third of scholars participate in extended policy electives, ranging from two weeks to three months at a time, with local, state, or federal agencies and health care organizations, to bridge community work with a practical understanding of policymaking. Scholars are expected to spend 10-20 percent of their time on clinical activities throughout their training in order to maintain their clinical skills [8].

The Program's Legacy
Many of the Clinical Scholars Program's 1,200 alumni have become leaders in health care policy and delivery. Graduates have assumed leadership roles in

government at all levels, contributed to the growth of academic internal medicine and pediatrics, among other fields, and engaged communities as physician-leaders to resolve problems in delivering health care using approaches like CBPR [8, 10]. Some, like Drs. Ed Ehlinger, David Gifford, and Nirav Shah, have gone on to become state health commissioners; others, like Drs. William Applegate, Linda Rosenstock, and David Nash, are now university deans.

As one of the first major postresidency training program to emphasize nonbiological research, [13] the CSP has had an important role in shaping other clinical research and health services research training programs. As elaborated by Robert Dittus, MD, alumnus of the CSP class of 1984 and the director of the Institute for Medicine and Public Health at Vanderbilt University, many of the health services research training programs can trace their genesis to alumni of the RWJ program (telephone interview with Robert Dittus, MD, November 25, 2013). Additionally, many of the early leaders in the field of emergency medicine, who helped it become recognized as a specialty, were CSP alumni [14].

Alumni of the Robert Wood Johnson Clinical Scholars Program have also been active in government, and many prominent members of the Centers for Medicare and Medicaid Services, the Department of Veterans Affairs, and the Department of Health and Human Services have trained in the program [10]. CSP alumni, among other physicians, brought about the passage of the Children's Health Insurance Program Reauthorization Act of 2009, which mandated the creation of the Pediatric Quality Measures Program to maintain high levels of quality in pediatric care. Five of the seven national centers of excellence established by that piece of legislation are currently headed by CSP alumni [2].

Perhaps just as importantly, the CSP has helped to inculcate a sense of activism among scholars and alumni. Stacey Lindau, MD, an alumna of the CSP class of 2002 at the University of Chicago and a member of the National Advisory Council of the program, relates how the CSP's "traditions of promoting excellence, critical thinking, and service extends beyond the two to three years of training, effectively creating a pipeline of alumni dedicated to service"(telephone interview with Stacey Lindau, MD, December 3, 2013). In 2009, at the annual meeting of the National Advisory Council, Dr. Lindau, along with other alumni, noted how physicians were largely uninvolved in the process of drafting legislation on improving health care access and quality. She encouraged fellow physicians to convene in Washington, where they met with leaders of Congress to increase awareness of health care disparities and to advocate on behalf of the uninsured and others without ready access to health care (telephone interview with Stacey Lindau, MD, December 3, 2013).

Conclusion
For over four and a half decades, the Robert Wood Johnson Clinical Scholars Program has challenged the assertion that physicians have little role to play in shaping their communities outside of the clinic and the hospital. It has pursued its

aims of training talented physicians to become leaders of change in the clinic, the classroom, and the community at large with great success.

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MEDICAL EDUCATION
Teaching Big in Texas: Team-Based Learning for Professionalism Education in Medical Schools
Rebecca Lunstroth, JD, MA, and Eugene Boisaubin, MD

Medical school enrollments continue to increase in America, making large classes more impersonal and less desirable. Shifting education to more efficient small-group teaching sessions is now valued by almost all medical educators. But large numbers of small student groups often require large numbers of trained faculty facilitators. For many years the University of Texas Medical School at Houston has offered a robust ethics and professionalism (E&P) curriculum that consists of both lectures and facilitated small-group sessions. Certain topics, however, such as professionalism, social justice and resource allocation, and social determinants of health, were not given adequate attention and we knew they would be better addressed through a project rather than a lecture; we wanted students to go beyond mere comprehension of the material and have the opportunity to analyze and apply the information they were receiving. Therefore, we replaced the lecture series with three team-based learning (TBL) sessions to address these subjects and ease the demand on faculty for facilitating the small-group sessions.

TBL was created by professor Larry Michaelsen when his business classes became too large for available faculty to cover and has been a trend in medical education in the last five years. However, we could find no instances in the literature of TBL use to teach E&P in American medical schools.

TBL is an instructional strategy that engages students by giving them the opportunity to wrestle with new concepts and learn new materials through an assigned task or project. For example, in learning how best to approach the allocation of scarce resources such as organs, students would first read selected source material. Then, in small groups they would be asked to grapple with determining which one of six very different patients is the most appropriate recipient of a donated kidney and why. The component parts of TBL are, in order, the creation of learning objectives, a preclass reading assignment, a graded "readiness" quiz before the session, an assigned group project, reports from the groups, and finally a wrap-up session led by the course faculty [1]. The readiness quizzes guarantee that students are familiar with the materials in advance of the assignment, and the structure provides a mechanism for efficiently conveying information to large groups.

We decided to incorporate TBL techniques into two places in the curriculum: in an exercise for incoming first-year students and in the second-years' three ethics and professionalism sessions. In the first exercise, students in the next incoming class

who have read Medical Professionalism in the New Millennium: A Physician Charter (the Physician Charter) [2] will be divided into small groups and instructed to draw a life-size physician on butcher paper that illustrates the attributes, attitudes, and actions of a professional. For example, a physician might be depicted holding a small balance scale, demonstrating her commitment to justice in health care delivery. When this exercise was done with second-year students, large ears were drawn on one depiction, representing the physician's responsibility to listen to the patient at all times. The drawings will be hung around the room and selected representatives from the groups will present their work to the class.

The second-year students' E&P course is divided into three modules: one on professionalism, one on the social determinants of health, and one on justice in resource allocation. The preclass reading assignment s the Physician Charter. The objectives of the professionalism session are to define professionalism; identify the attributes, attitudes, and actions that make a medical professional; and apply the Physician Charter principles to cases. Students were also asked to identify the three most important obligations physicians have towards their patients and to society. The class of 240 students is divided in half, with a course co-director for each group of 120 students. These two groups are then subdivided into 30 TBL groups of 4 students each. The student TBL groups wrestle with and must make recommendations in four case scenarios involving a physician who gives wrong information to colleagues about a patient, a research ethics dilemma, a case of physician impairment, and a professional boundary violation. Each of the course co-directors then leads his or her half of the full class in a discussion of the four cases, and, at the conclusion, gives a wrap-up lecture.

The second session addresses the social determinants of health, a topic that heretofore had not been covered in any depth. The objectives of this session are defining and understanding determinants and their relationship to health disparities, putting the determinants into context, and considering ways to mitigate health disparities by altering susceptibility to social determinants. The preclass assignment is to watch the critically acclaimed segment "In Sickness and in Wealth" [3] from the PBS program *Unnatural Causes*, which discusses numerous examples of how environmental factors affect people's health behaviors, opportunities, and outcomes. The class groups are then given demographic and health information on one of Houston's poorest neighborhoods and asked to design a pilot program to address one social factor—e.g., low high school graduation rates, lack of nutritious food—that affects health, describe how their project would impact the health of the community, and identify the necessary resources to launch their project and any barriers, including legislative obstacles, that would be likely to affect the success of the project. Groups present their projects to the full class and field questions from their classmates.

In the third and last session, students are asked to grapple with resource allocation and the justice principle. While we built justice into case examples used to teach these issues, we did not think that they presented a concrete enough illustration of

some of the concerns facing our health care system. We wanted students to analyze different ways in which health care resources can be allocated; to be able to balance the costs and benefits of preventive, acute, and tertiary care; and to identify the trade-offs that have to be made in distributing health care. Students are assigned three different source materials to familiarize them with concepts of justice and the US health care system—one on the Affordable Care Act, one on resolving ethical conflicts more generally, and one about teaching justice to medical students [4-6]. To facilitate this session we acquired a license to the NIH/University of Michigan CHAT, a computer program that allows the user to create a hypothetical group insurance plan, and programmed our options to mimic the essential health benefits of the Affordable Care Act. Each TBL group is allocated a limited budget and has to rank which services are most important to them, first individually, then as a group representing the city, and decide the level of benefit (e.g., Platinum, Gold) that the recipients receive. The faculty facilitators ask the various groups to tell the class which benefits they decided were most important and why and then ask the other groups to respond.

These TBL sessions provide students with opportunities to grapple meaningfully with some of the more problematic issues in ethics and professionalism that they will face as physicians. Student feedback over the three years we have used these modules has been generally positive, although it requires facilitators who are flexible and comfortable leading large group discussions. Ideally, a truly interactive TBL session would have far fewer students per group to allow more individual student contribution and evaluation. However, we do believe that by halving the class size, dramatically reducing the number of facilitators, and introducing the proven educational elements of TBL, considerable progress has been made in reducing the "big" in Texas teaching.

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IN THE LITERATURE
Advocacy by Physicians for Patients and for Social Change
Joshua Freeman, MD

Dobson S, Voyer S, Regehr G. Agency and activism: rethinking health advocacy in the medical profession. *Acad Med*. **2012;87(9):1161–1164.**

Should physicians be expected to be advocates for their patients? How about for patients as a group? Individual physicians often must decide whether, how, and how much to advocate for their patients. Further afield, they must decide whether and how to get involved in societal issues that affect the health of people in general. In our teaching, should we expect our students and residents to be advocates? If so, how do we teach that? Is it desirable, or even permissible, to consider advocacy a core component of medical education? If so, how should we evaluate it? Should a student who does not—or even refuses to—advocate for patients be given a passing grade?

Sarah Dobson and her colleagues addressed these questions in a 2012 "Perspective" article in *Academic Medicine* titled "Agency and Activism: Rethinking Health Advocacy in the Medical Profession" [1]. In an important contribution, they propose dividing advocacy into two components, which they call "agency"—working on behalf of the interests of a specific patient—and "activism," which is directed toward changing social conditions that impact health, and the effects of which are seen in populations more than in individuals. The difference, they say is that, "whereas agency is about *working the system*, engaging in activism is about *changing the system*" [2].

This is helpful in clarifying different perspectives on the term "advocacy." While the Royal College of Physicians and Surgeons of Canada's CanMEDS Physician Competency Framework, for example, calls for physicians to "responsibly use their expertise and influence to advance the health and well-being of individual patients, communities, and populations"[3], the authors observe that trainees "have variously described it as charity or as going above and beyond regular duties." They note that "several studies have concluded that although physicians generally endorse the idea of advocacy, they rarely engage in it" [4].

The American Medical Association's (AMA) Declaration of Professional Responsibility: Medicine's Contract with Humanity [5] contains a more explicit statement about advocacy that certainly would fit the authors' definition of activism; its item 8 is "Advocate for social, economic, educational, and political changes that ameliorate suffering and contribute to human well-being" [5].

Physicians would probably agree that advocacy for patients is an appropriate role, but advocacy for social, economic, educational, and political change is far less widely accepted. Dobson and colleagues try to bridge this gap by concluding their article with the assertion that there is a distinction to be made between the role and responsibilities of the individual physician and that of the medical profession as a whole. They concede that "physicians and other health professionals witness the effects of the socioeconomic determinants of health every day, made visible to various degrees in every patient encounter" and therefore have the "authority...to shed light on matters influencing...health," but they question "whether this authority translates into an obligation" [6].

Of course, for the profession to advocate according to the AMA Declaration, individual physicians must do so; the profession is the sum of its parts. And, indeed, many physicians are social activists. Many medical students enter school with a commitment to activism demonstrated by school and community volunteer work, creating and working in free clinics, and pursuing training in public health, policy, and other fields related to social change. Sadly, however, along with empathy, which has been shown to dramatically drop as medical students enter their clinical training [7], volunteerism and commitment to social change decline during the training years. One reason often suggested for the drop-off in voluntarism is that, in addition to being busier during their clinical years, students' early participation in free clinics was motivated by self-interest—improving their chances for acceptance to medical school or gaining exposure to patient care during the time that their schoolwork is mostly in the classroom—rather than true social commitment.

This may be true for some, but as an educator I believe there are many students with true social commitment and that the fault lies in part with the school and faculty who do not always manifest and encourage either the empathy or the advocacy that we would like to see in our physicians. In their clinical years of medical school and in residency training, physicians-to-be emulate those who are more senior members of the profession. Despite the AMA Declaration, neither the Liaison Committee for Medical Education (LCME), which accredits medical schools, nor the Accreditation Council for Graduate Medical Education (ACGME), which accredits residency programs, has requirements for teaching advocacy. In the absence of such requirements it is less likely that advocacy programs will be developed for students and residents and more likely that, when they are, the students who participate will be those who are already interested in doing such activities. If we do not have these expectations of all students and all physicians, then only a minority will be involved.

It is gratifying that, when it comes to issues that most directly affect the health of their patients, doctors most often adopt the "agency" role that can more easily be seen as "medical" rather than social. But even physicians in public health roles may limit their advocacy to matters concerning individual behavior (e.g., to immunizations, smoking cessation, cancer screening, and seat belt use) rather than extending it to advocating for structural societal change.

There are a fair number of physicians involved in politics, both individually (as officeholders and candidates) and through organizational lobbying, who are advocating for social, economic, educational, and political changes, but most often they advocate for measures to further their professional self-interest rather than for changes that will improve the well-being of the public. Many of the physicians in politics often advocate for smaller government, which frequently means endorsing policies that cut the social safety net, decrease funding for public education, and oppose universal health insurance [8]. In this way, they are acting as agents of their own social class rather than as advocates for those most in need.

Not only are many physicians socially conservative and not, perhaps, in favor of policies "that ameliorate suffering and contribute to human well-being," physicians are busy people who mostly see themselves in the role of providing direct patient care, not engaging in social activism. Even active "patient agency" can come under fire; last year, Gordon Schiff, MD, of Harvard, wrote in *JAMA*'s "A Piece of My Mind" about the negative reaction he received when he gave a patient some money to help him buy medication, a clear and present form of advocacy and agency [9].

A story is told in most introductory public health classes about a man fishing in a river who sees a body floating by. He pulls it out, but then sees another coming downstream, and then two more, then more after that. He calls for help, and his caring community does help. People pull bodies out, but the bodies keep coming downstream faster and faster. The townspeople organize brigades and develop efficient systems using a conveyer belt to bring the bodies to a safe spot and backhoes to dig mass graves. Finally, someone says, "You know, maybe we should go upstream and find out what's killing these people."

Everyone needs the basic facilitators of a healthy life: adequate food, housing, warmth, education, and safety. If physicians simply patch up those who are sick or harmed by preventable disease rather than pushing for the changes needed to actually prevent them, we will not have as great an impact on health. If we are going to advocate successfully for those changes, then such advocacy must become a core value that we teach in medical school and residency, that we select students for their commitment to, and that we model every day as their teachers.

Otherwise we will just be pulling bodies from the river.

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STATE OF THE ART AND SCIENCE
Greener Clinics, Better Care
Phil Perry, MSJ

Sustainability and environmental stewardship have moved onto the agendas of many hospitals and health systems for both philosophical and practical reasons. Daniel Callahan, co-founder of the Hastings Center, strongly advocated a shift to sustainable medicine [1] and away from the upward curve of health care's cost and technology spiral. The language of environmentalism has permeated our thinking in many areas, and with good reason. It's clear that health care needed some "greening," starting with environmentally sound health care facilities that save on energy, water, and material costs. Some recent history shows why this trend toward sustainable health care is growing.

Health facilities are heavy users of energy and water resources; they also have to use hazardous chemicals every day for sterile procedures, universal precautions, and patient care. A 2012 Commonwealth Fund report that aggregated data to determine the environmental impact of US health care facilities pointed out that hospitals alone produce 6,600 tons of waste per day and use large amounts of toxic chemicals, including radioactive isotopes. In many communities, the hospital and its associated satellite clinics were among the largest users of electric power and water [2].

In the 1990s, hospital incinerators were implicated in air pollution, and waste haulers illegally dumped medical waste, leading to damaging media reports. Notoriously, high mercury levels in Boston Harbor and other locales were attributed largely to medical sources that released it in waste water, through incineration, or by improperly disposing of it in landfills [3]. Even blood bags were criticized since, when the lifegiving blood products they contained carried phthalate residue from the bags' plastics into the patient's bloodstream, the patient was exposed to these potentially carcinogenic compounds [4]. The healers, used to being the good guys, were now on the defensive. But, inside the health community, there was also resolve to "clean up our act" [5]. In 1998 the EPA and the American Hospital Association signed a memorandum about environmentally safer methods of waste disposal, and that led to the formation of a nonprofit called Practice GreenHealth, whose task was to help clean up health facilities nationwide [6]. Immediate targets were mercury waste reduction or elimination, toxin reduction, and medical waste management.

Such clean-up efforts gained support. An Institute of Medicine report recommended that,

on the local scale, within the walls of a hospital, research facility, or clinic, green construction and operation can protect patients, workers, and visitors. For example, choosing safe cleaning agents or limiting the use of pesticides can reduce the potential for toxicity among those exposed. On the community scale, reducing the ecological footprint of a hospital reduces environmental hazards and protects natural resources [7].

Health care systems have found more sustainable ways of doing business. The large health system Kaiser Permanente, in Oakland, California, convened an environmental stewardship council, which leads its long-term effort in going green [8]. Green construction planning is done through an alliance of contractors who have agreed to Kaiser's sustainability principles. A "sustainability scorecard" is applied to its purchase of medical products, which accounts for about a billion dollars of spending per year [9]. Water conservation efforts at its hospitals yielded significant savings in drought-prone southern California. Likewise, New York Presbyterian has set up a sustainability council and shown that a larger urban hospital can achieve significant environmental gains, including Energy Star recognition from the Environmental Protection Agency [10].

In case after case, 10-30 percent savings in water and energy use proved to be achievable [11-13]. In addition, they have been shown to save money for those who undertake them: for hospitals, on a national scale, the Commonwealth Fund report says "our conclusion is that these savings could exceed $5.4 billion over five years, and $15 billion over 10 years" [14].With these kinds of successes, and its contribution to health care cost containment as well as a better environment, the appeal of green health care to businesses was strengthened.

What about Clinics?
Interestingly, some experts predict that "even larger cost savings may be realized through implementation of these sustainability interventions in nonacute settings, such as outpatient clinics and doctors' offices, because of the lower fixed-cost demands of these settings" [15]. Clinics more closely resemble office buildings than hospitals, and thus can more easily be made greener or built to save energy and water.

Greening projects are under way at clinics around the country. The impetus for a greening of health care at an individual facility often comes from staff who propose recycling or green purchasing initiatives [16], but the best and most effective "green teams" also have buy-in and support from the top levels of management and the medical staff, as at Kaiser [17, 18]. Almost any clinic can be "light green" once the staff starts thinking about energy conservation. A longtime sustainable health care advocate, Ted Shieh, MD, is an immediate care specialist at DuPage Medical Group in Downers Grove, Illinois. He became his system's in-house green health care expert. Shieh, a physician member of Practice GreenHealth, maintains that if more physicians would get involved, change would happen faster. He has led several

initiatives at DuPage's Lisle and Glen Ellyn locations and is planning more (Interview and correspondence with Ted Shieh, MD, June-July 2014.)

For example, IV bags and tubing that were made of potentially endocrine-disrupting DEHP (di(2-ethylhexyl)phthalate) materials were replaced with new ones that were safer for patients, recyclable, and cheaper. Other easily accomplished projects include switching from disposable to reusable instruments, evaluating usage patterns to reduce medication and supplies waste, using multi-dose vials when available, and prescribing as little medication as needed. "Turn it Off" is a basic power-saving initiative that anyone can do to reduce energy used by lights, copiers, and computers (Interview and correspondence with Ted Shieh, MD, June-July 2014.)

Other clinics are taking on these projects, too:
- Vidant Health reduced its waste volume by 63 percent at a rural clinic in Bertie, North Carolina, a 6-bed facility built to critical-access standards. Since the program began, that's a 13-ton waste reduction. Part of the reduction is from recycling, and more savings are expected from analysis of purchasing practices [19].

- A solar thermal hot water system provides 50 percent of all hot water at Gunderson Lutheran's dialysis clinic in Minnesota [20].

- Affinity Health, in Menasha, Wisconsin, has committed to purchasing 70 percent of its power from renewable energy sources to run its new clinic for heart, lung, and vascular care, a unit of Saint Elizabeth Hospital. This step is in keeping with "lean principles" of energy and resource use [21]. Seven of Affinity's buildings are LEED (Leadership in Energy and Environmental Design) certified.

Two voluntary national programs can help facilities improve conservation efforts. To be truly "deep green" a clinic can seek LEEDs for Healthcare certification. Fairview Health Services' Savage Clinic in Minnesota is one example [22]. LEED involves meeting strict energy conservation requirements and design specifications, right down to the kind of paint (low in volatile organic compounds) that can be used. Very few clinics have sought the highest (platinum) LEED rating, but about 250 health care clinic buildings nationwide have some level of certification [23].The EPA's Energy Star program is another voluntary way to analyze and reduce usage. Facilities complete an energy audit and implement changes based on the resulting data [24]. This national benchmark enables a facility to see how far it needs and wants to go to green up its operations and rank among the national leaders.

New construction and retrofitting can help to reduce a carbon footprint. A partner of the national Healthier Hospitals Initiative, the San Francisco-based Center for Health Design started the Pebble Project [25] so that members could access data and reports about actual projects and results. The Pebble Project mission is to "create better health care facilities that improve patient and worker safety and clinical outcomes,

while maximizing environmental performance and operating efficiency" [26]. Among the clinics that architects associated with the Center for Health Design have built are Grace Hill Clinic in Missouri (12 physicians) [27] and Clinica de la Raza (8 physicians) in California [28].

One clinic that has tried to actualize Callahan's vision of sustainable medicine is the Kimberton Clinic. Richard Fried, MD, explains the effort on his web site. "Just as we all have an individual moral duty to reduce environmental pollution and global warming, so must we all be committed to cost containment, regardless of what kind of medical insurance we do or do not have" [29]. At Kimberton, preventive medicine and sound prescribing are emphasized to eliminate overuse of antibiotics and psychopharmaceuticals. Patient testing or screening is done sparingly, all in an effort to make health care economically sustainable for both patients and the clinic.

Conclusion
By adopting an environmental ethic locally or by joining in one of the major environmental initiatives, whether EnergyStar, Healthier Hospitals Initiative, or Practice GreenHealth, clinics can improve their sustainability rankings in many ways and potentially reach high efficiency—in green buildings technology, at least. But there's a long way to go toward truly sustainable medicine. Even PracticeGreenHealth counts just over 1,300 partners [6]. There are about 5,000 hospitals [30] and more than 500,000 clinics in the US [31], many in older buildings.

The health care industry, like all industries, has been pushed from outside and in to make these concerns a high priority, given what's at stake. Fortunately, experience to date indicates that energy reduction, water conservation, hazmat reduction, and other such goals are not only doable, but can result in some significant cost savings that can drop to the bottom line and add back into patient care resources.

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Virtual Mentor

HEALTH LAW
Physicians, Medical Marijuana, and the Law
Joseph Gregorio

Charlotte's Story
After attempting to treat their daughter Charlotte's daily seizures for three painful years to no avail, the Figi family was nearly out of options and hope. Five-year-old Charlotte suffers from Dravet Syndrome, a rare and severe form of epilepsy that cannot be controlled by medication [1]. The Figis had tried nearly every treatment short of brain surgery or a medically induced coma to alleviate Charlotte's seizures, including a variety of medications that did little to reduce the seizures, left Charlotte "doped out," and had the potential to become addictive. By the age of five, Charlotte was experiencing nearly 300 seizures a week and had lost the ability to talk, walk, and eat. The Figis, who had been against marijuana use, discovered an online video of a California boy who had a severe form of epilepsy like Charlotte's. The video showed the boy receiving a marijuana concentrate (oil) which seemed to alleviate his seizures [1]. The oil was high in cannabidiol (CBD), the therapeutic agent in marijuana, rather than delta-9-tetrahydrocannabinol (THC), the psychoactive agent that produces the "high," so the oil could be used therapeutically while intoxicating the user no more than the medications Charlotte had already tried [1, 2].

The Figis contacted hundreds of doctors who refused to recommend marijuana for Charlotte, either because of her age, their opinions of the plant's efficacy, or fears of violating federal law [1]. Finally the Figis found two doctors, Margaret Geddy and Alan Shackelford, who were willing to recommend marijuana for Charlotte. Though both had reservations about administering such a powerful and federally illegal substance to such a young child, the alternatives seemed far worse. Dr. Geddy explained that it was a rather easy decision to give marijuana to a developing child when she had suffered so much brain damage and multiple brushes with death from constant seizures. The Figis received the recommendation and obtained the oil. The first time Charlotte received the oil, she went from having 300 seizures a week to having just one [1]. Unfortunately, high-CBD plants were in short supply—CBD has been bred out of marijuana plants over the past several decades, as growers sought to increase THC levels to produce a more powerful high [1-3].

That's when the Figis met with the Stanley family, owners of one of the largest marijuana dispensaries in Colorado. The Stanleys had a strain that was high in CBD and low in THC and thus unpopular with regular patients because it lacked psychoactive effects. After hearing Charlotte's story, the Stanleys modified their existing strain to create one extremely high in CBD, naming it Charlotte's Web. Charlotte still receives the oil twice a day. She has only a few seizures a month and

is now able to walk and talk again [1]. Since Dr. Sanjay Gupta gave national attention to Charlotte's story in his CNN program explaining why he changed his opinion on medicinal marijuana, more than 100 families from 43 states have relocated to Colorado to treat their children with Charlotte's Web [4].

It's plausible that if Drs. Geddy and Shackelford had not been willing to recommend marijuana to Charlotte, her life would have been markedly worse, if not prematurely ended, and the miracle strain known as Charlotte's Web would not exist. Furthermore, if it weren't for Dr. Gupta's reporting of the story, many families would not have had the courage or even the idea to travel to another state to treat their children's seizures [5].

Possibly the greatest effect of Charlotte's story was the changing of social opinion on medicinal marijuana. Since Charlotte's tale was told back in August 2013, eleven states have passed legislation legalizing high-CBD oils, which will give the 9,000 patients on the waiting list a better chance of obtaining it [5]. When such debilitating conditions afflict children, families—and legislators—appear more open to the idea of trying radical, less invasive treatment options [1, 6].

Concerns about Medicinal Marijuana's Status
There are several barriers to physicians' prescribing marijuana for medical use. Although it remains illegal under federal law and is classified as a schedule 1 drug under the Controlled Substances Act (CSA) [7], 23 states and the District of Columbia have decriminalized its use for medicinal purposes [8]. Discrepancies between federal and state medicinal marijuana laws have placed doctors—and patients—in a difficult situation: to provide their patients with medicinal marijuana, doctors must risk violating federal law and, potentially, the revocation of their Drug Enforcement Agency (DEA) licenses [3]. For example, physicians in Massachusetts have been extremely slow in writing recommendations for patients [9]. This delay is partly fueled by visits from DEA agents to physicians who were involved with dispensaries. Several such physicians reported that the DEA issued an ultimatum to them: sever ties with the medical marijuana industry or risk losing your DEA license for prescribing controlled substances [10].

Currently, it is illegal for physicians (even in states where medicinal marijuana is legal) to *prescribe* the drug because it is schedule 1, and prescribing it would constitute aiding and abetting the acquisition of marijuana, which could result in revocation of DEA licensure and even prison time [11]. However, in states where medicinal marijuana is legal, doctors can write a *recommendation* for the plant, after determining and certifying that the patient suffers from one of the conditions that the state's law deems to warrant medicinal marijuana [11]—generally debilitating conditions such as cancer, glaucoma, multiple sclerosis, and HIV/AIDS [12]. This recommendation "loophole" was upheld by the US Court of Appeals for the Ninth Circuit in *Conant v. Walters*, which decided that a physician's discussing the potential benefits of medicinal marijuana and making such recommendations constitute protected speech under the First Amendment [13]. The court reasoned that

doctors should not be held liable for conduct that patients might engage in after leaving the office and that open and unrestricted communication is vital in preserving the patient-doctor relationship and ensuring proper treatment [11, 13].

Once the physician writes the patient a recommendation for medicinal marijuana, the patient must register with his or her state's database to obtain a marijuana patient ID card, after which he or she can pick up medicinal marijuana from a dispensary [14]. In most states, possession of the identification card allows a patient to obtain, possess, or grow medicinal marijuana without violating state law but provides no shield against violations of federal law, which trumps state law based upon the supremacy clause [15]. Federal legislation that would protect patients in states where medicinal marijuana is legal is pending [16].

Concerns about Evidence
Though many patients seek access to medicinal marijuana, some doctors are reluctant to recommend it due to a dearth of hard clinical data regarding its efficacy in treating certain conditions [9]. Marijuana's schedule 1 status makes it difficult to conduct research because any cultivation, clinical testing, or research on it must attain the extremely rare approval of the federal government [17], and only one organization, the National Center for Natural Products Research at the University of Mississippi, is authorized by the federal government to manufacture marijuana [18]. This creates a vicious circle: marijuana is schedule 1 and has no currently accepted medical use in treatment because there is no data on its safety and efficacy; there is no data because marijuana is schedule 1 and clinical testing is restricted [19].

Dispensing Concerns
Aside from the lack of data on efficacy, some doctors are reluctant to recommend a drug whose form, contents, dosage, and type cannot be specified, as they would be in a typical drug prescription [14]. The amount of marijuana the patient can obtain is limited by state law [20]. The type of marijuana and mode of delivery is determined by the recommendations of dispensary employees [9]. Furthermore, because of its dual legal status, the product and its growing and cultivation are largely unregulated and unstandardized. This can lead to safety concerns; there have been incidents of pesticides, molds, and other contaminants, the consumption of which could lead to serious health problems, being found on plants [21].

Intraprofessional Consequences of Legal Inconsistencies
In states where medicinal marijuana is legal, but a majority of physicians are reluctant to write recommendations, an influx of "pot docs" is often seen, reflecting a commercialization of medical marijuana recommendations [3]. These are physicians who primarily treat a variety of ailments for which marijuana is recommended, and they often advertise their businesses as being centered on medicinal marijuana [3]. This is a concern to some in the states whose medicalization movements were predicated on the belief that medicinal marijuana would only be available to a limited number of people with debilitating conditions and would not facilitate recreational use of the drug [8, 12]. Proponents of medicalization argue that doctors

often prescribe drugs for off-label purposes, thus strict limits on ailments warranting recommendations would unduly restrict patients' access to the medicine [8].

But many states expand their covered ailments beyond such extreme conditions [8]. Because, for example, California's law about the conditions for which marijuana use is allowed includes a catchall "or any other illness for which marijuana provides relief" provision [12], pot docs are able to write prescriptions for problems such as anxiety, insomnia, and chronic pain [3, 8]. Some physicians feel that these pot docs cheapen the profession by acting as quasimedical drug dealers who make money by providing their patient with an easy, accessible high, rather than treating a serious ailment [3].

Some states are trying to avoid this by requiring that recommending physicians have an existing bona fide clinical relationship with the patient who is seeking the recommendation [9, 14]. Of course, this requirement, while protecting the legitimacy of the recommendation, may create tension within the patient-doctor relationship when patient desires medicinal marijuana but the physician will not recommend it, either for reasons having to do with its therapeutic potential, lack of control over the dosage patients receive, or overall objections to its use [6].

One last objection that physicians in some states have with medicinal marijuana is the lack of regulation regarding clinical training on the medical and legal aspects of the new laws [14]. Massachusetts was the first state to require that physicians take a two-hour course before they could recommend medicinal marijuana to their patients [22]. Doctors generally prescribe only drugs that have been rigorously tested, their clinical results reported in published articles, and information about indications for their use, the mechanisms by which they achieve results, and their expected side effects available in package inserts or the *Physicians' Desk Reference*. None of these resources for information about the efficacy, dosing, or regulations that come from FDA-approved drugs are available for medical marijuana [22].

A Turning Tide
Stories like Charlotte's successful treatment and Dr. Gupta's change of heart have helped shift opinions—especially those of physicians—regarding medicinal marijuana. A study reported in April 2014 by *WebMD* surveyed 1,544 doctors in 12 specialties and 48 states [23] and found that 56 percent of those surveyed believed that medicinal marijuana should be legalized nationally and 69 percent believe it can deliver real benefits for certain treatments and conditions. The majority of positive responses came from oncologists and hematologists, probably because of marijuana's use in treating cancer-related pain, counteracting nausea, and stimulating appetites reduced by chemotherapy [23]. Furthermore, a study published in the *Journal of Adolescent Health* in 2014 reviewed data measuring drug use and the perceptions of adolescents and found that legalizing medicinal marijuana at the state level causes no measured increase in youth marijuana use, thus addressing a key concern of those who oppose medicinal marijuana [24]. As more states legalize marijuana and others continue to expand and refine their regulations, physicians will

likely play an important role as trusted sources for evidence on clinical efficacy and side effects and have a responsibility to be informed on the topic [3].

In late May of 2014, the Republican-controlled House of Representatives voted to block the federal government and its agencies from interfering with physicians, patients, and dispensaries acting in compliance with state medicinal marijuana laws [16]. Approval from the Senate would help settle conflicts between state and federal law [16].

Furthermore, the FDA announced in June 2014 that it will begin the process of reevaluating marijuana's schedule 1 status [17]. This is good news for physicians concerned about the lack of data on marijuana; if its classification were lowered to schedule 2, more studies on its efficacy could be conducted and doctors would have a larger pool of data regarding its potential uses and side effects from which to draw judgments about its use [19]. As more states expand their laws, more patients consume the drug, and more data becomes available, physicians will become more confident about using medical marijuana.

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POLICY FORUM
Preventing Nuclear War: A Professional Responsibility for Physicians
Ira Helfand, MD, Antti Junkkari, BM, and Ogebe Onazi, MD

Since the destruction of Hiroshima in August 1945, the medical community has understood that it cannot respond in a meaningful way to the terrible devastation caused by nuclear weapons. Dr. Marcel Junod of the International Committee of the Red Cross (ICRC) arrived in Hiroshima just one month after the attack and chronicled the enormity of the destruction, the decimation of the city's medical resources, and the inability of the relatively few surviving health professionals to care for the enormous number of severely injured patients [1]. In a 2012 statement at the United Nations, the ICRC reaffirmed its belief that the world lacks any "adequate international response capacity to assist the victims if a nuclear weapon were to be detonated" [2]. Based on this understanding the medical community must prevent what we cannot cure.

Today, it is not the detonation of a single nuclear weapon that we must fear. Despite the end of the Cold War, there are still more than 17,000 nuclear weapons in the world today, most of them many times more destructive that the bombs that destroyed Hiroshima and Nagasaki [3, 4]. It is more important than ever for the medical community to educate the world about the danger posed by these weapons and our inability to respond to the humanitarian disaster that will result from their use.

The Current Danger
Recent studies have shown that the use of only a small fraction of the world's nuclear arsenal, in a war confined to one region of the globe, would cause a worldwide disaster. A 2006 paper by Alan Robock and his colleagues modeled the consequences of a limited nuclear war between India and Pakistan in which each side used fifty Hiroshima-sized bombs, less than half of their actual nuclear arsenals and less than 0.03 percent of the world's nuclear arsenal [5]. The direct effects in South Asia would be catastrophic: more than 20 million people dead in less than a week from the explosions, fires, and immediate radiation effects.

The global impact would be even worse. The fires caused by these hundred nuclear explosions would inject five million tons of soot high into the atmosphere, blocking out sunlight. Across the planet, temperatures would drop an average of 1.3 degrees Celsius, the growing season would be shortened, precipitation would decline, and food production plummet. In the US, corn production would decline 12 percent for a full decade [6]. In China, rice production would decline 17 percent, corn

production16 percent, and winter wheat 31 percent, all for a full decade (unpublished data).

The world is not able to absorb a decline in food production of this magnitude. At this time, world grain reserves amount to only some 70 days of consumption [7]. Further, there are today some 825 million people who are already malnourished [8], and 300 million people who receive adequate nutrition today but live in countries that are highly dependent on food imports [9]. All of these people, most living far from the scene of the actual conflict, would be at risk of starvation in the "nuclear famine" that would follow even this limited nuclear war. In addition, the very severe shortfalls in Chinese food production would put another 1.3 billion people at risk, even though they are relatively well nourished today. Worldwide, more than 2 billion people would face severe food insecurity and possible starvation [10].

A large-scale nuclear war would be even more devastating. A conflict between the US and Russia, using only those weapons they will still possess when the New START treaty is fully implemented in 2017, would loft 150 million tons of soot into the atmosphere, dropping temperatures an average of 8 degrees C across the globe [11]. In the interior regions of North America and Eurasia, temperatures would drop 20 to 30 degrees Celsius, producing conditions not seen on Earth since the coldest point of the last Ice Age [12]. In many regions, food production would stop, ecosystems would collapse, and the vast majority of the human race would starve to death.

We have been assured over the last 20 years that we do not need to worry about war between the US and Russia. Events in Ukraine have shown, however, that conflict between the nuclear superpowers is still possible. Even if the US and Russia do not engage in a deliberate use of nuclear weapons, there remains the very real threat of accidental nuclear war, that is, one that starts because of an accident or a false computer alarm. Eric Schlosser's book *Command and Control* describes in frightening detail the many near misses that have occurred during the nuclear weapons era.

The Role of the Medical Community
For more than 50 years, members of the medical community have understood that they have a responsibility to educate the public and decision makers about the medical consequences of nuclear war. In 1962, Physicians for Social Responsibility (PSR) published a series of articles in a special issue of the *New England Journal of Medicine* detailing the projected effects of a nuclear war [13-17]. In an accompanying editorial, Joseph Garland wrote that "the most important function of the physician, however, relates to prevention…. The employment of every reasonable means to prevent such a catastrophe becomes the concern of everyone, and not least the physician" [18].

During the period of increased Cold War tensions in the early 1980s the medical community played a critical role in alerting the world to the dangers of nuclear war.

Starting in 1983 *JAMA* published a special issue each August on the anniversary of the Hiroshima bombing dedicated to the danger posed by nuclear weapons. Medical schools in major cities across the United States conducted public symposia with PSR describing the then-available data about the medical effects of nuclear war. PSR's sister organizations in the International Physicians for the Prevention of Nuclear War (IPPNW) conducted similar educational efforts. The importance of this work was recognized when IPPNW was awarded the 1985 Nobel Peace Prize for "spreading authoritative information and…creating an awareness of the catastrophic consequences of atomic warfare... [T]his in turn contributes to an increase in the pressure of public opposition to the proliferation of atomic weapons" [19].

These efforts to educate both the public and decision makers had a profound impact on public policy. PSR was able to brief President Reagan at the White House and a delegation from IPPNW met with President Gorbachev in the Kremlin. Speaking of the impact of that briefing, Gorbachev said,

> The International Physicians for the Prevention of Nuclear War has come to exercise a tremendous influence on world public opinion within quite a short period of time. Their work commands great respect. For what they say and what they do is prompted by accurate knowledge and a passionate desire to warn humanity about the danger looming over it. In light of their arguments and the strictly scientific data which they possess, there seems to be no room left for politicking. And no serious politician has the right to disregard their conclusions [20].

In the years following these meetings the US and the Soviet Union entered into a series of agreements to halt and reverse the arms race, agreements that significantly reduced the danger of nuclear war.

With the end of the Cold War., the world began to act as thought the nuclear danger had passed. As we have seen, however, the threat of nuclear war did not end, and in recent years there has been increasing attention to the message first put forward by the medical community more than 50 years ago. Inspired in significant measure by the new data on limited nuclear war developed by PSR and IPPNW, the International Committee of the Red Cross and the Red Cross/Red Crescent Movement have passed two resolutions citing the overwhelming humanitarian catastrophe that would result from nuclear war, calling for the abolition of nuclear weapons, and urging all national Red Cross and Red Crescent Societies to conduct educational campaigns about the humanitarian consequences of nuclear war [21, 22].

In January of 2012 more than 30 deans of US medical schools and schools of public health issued a statement calling "on our colleagues in the medical and public health communities to educate their colleagues, patients and communities about the enormous danger we face as long as these weapons exist" [23]. In March 2013 the Norwegian government convened a two-day conference, attended by representatives

of 126 nations, to explore the humanitarian consequences of nuclear war and the implications of this data for nuclear policy. A total of 146 nations attended a follow-up meeting organized by Mexico in February 2014. Both meetings featured presentations by doctors from PSR and IPPNW. A third meeting is planned for December 2014 in Vienna.

Unfortunately, the medical community as a whole has been less vocal in addressing this pre-eminent threat to human survival. Medical schools, medical associations, and most medical journals have ignored this issue. In a 2010 editorial in the *Lancet*, David Wolfe and Richard Horton chided the medical community for this failure: "Indeed, it is over a decade ago now since *The Lancet* published anything remotely relevant to nuclear weapons as a threat to health. Such complacency has been a serious error. Now is the moment for physicians and scientists to build new opportunities for political progress to defuse the danger of a new more regionally focused nuclear arms race" [24].

This complacency is indeed a serious error. The danger of nuclear war remains the most significant threat to human survival. The literature on the global impact of limited nuclear war has been developing over the last 5 years, and many outside the medical community have taken seriously our warning and are beginning to act on it. It is time for the medical community to again provide leadership on the most important public health issue of our era. Our success in helping to stop the forward momentum of the arms race in the 1980s shows clearly the impact that we can have. We need to educate our patients again about the existential threat they face and to help them become active in the growing international movement to eliminate that threat.

There will be a presentation on this topic at the WMA Assembly in Durban in October, and the WMA will consider a resolution calling for the elimination of nuclear weapons. National medical associations like the AMA should take similar action. Other medical journals should run articles like this one so that the entire medical community will have the information needed to speak about this issue. It is an essential component of our professional responsibility to continue to work for the elimination of nuclear weapons until humanity is free of this danger once and for all.

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Virtual Mentor

HISTORY OF MEDICINE
The Medical Committee for Human Rights
John Dittmer, PhD

The Medical Committee for Human Rights was organized in New York in the spring of 1964 as a support group for civil rights workers in Mississippi. That summer upwards of a thousand volunteers, most of them white northern college students, would travel to the Magnolia State to register voters, work in community centers, and teach in the new Freedom Schools [1].

Most of the founding members of MCHR were doctors who had been active in left-wing organizations like the Physicians Forum. Some were in private practice. Others taught in medical schools or were working in the field of public health. Among the first physicians to work in Mississippi that summer were Elliott Hurwitt, the chief of surgery at Montefiore Hospital; H. Jack Geiger, then a young professor at the Harvard School of Public Health; and John L.S. "Mike" Holloman, a prominent Harlem physician and one of a handful of black doctors on the committee. Their Mississippi contact was Robert Smith, one of the few black physicians practicing in the state and a civil rights activist. Overall, more than 100 health care professionals—mostly doctors, but also nurses, psychologists, and social workers—spent at least a week in Mississippi during what would later be known as "Freedom Summer."

The medical volunteers who came south knew they were going into dangerous territory. This was to be the most violent period in Mississippi since the days of Reconstruction. And they were in for some surprises. Accustomed to the respect and deference accorded members of their profession, the northern physicians found themselves the object of hostility and hatred in the South. Although they were older than the typical summer volunteers and wore coats and ties, they were still Yankees aligned with Martin Luther King and his dangerous ideas about racial integration. And while they had hoped to practice medicine in the state, Archie Gray, the head of the Mississippi Department of Health and a vehement segregationist, made it clear that they would not get licenses. Administering first aid was not prohibited, however, and that summer some doctors stretched the definition to fit the occasion.

After arriving in Jackson, the medical volunteers were driven to movement outposts throughout the state, where they performed a variety of functions. They examined summer volunteers, treating their minor ailments. They also discovered that a good number of the veteran civil rights activists were suffering from what psychologist Robert Coles labeled "battle fatigue"[2]. Providing psychiatric care and "rest and recreation" opportunities for burnt-out civil rights workers became an important

function for MCHR. The medical volunteers who were most successful pitched in to help in a variety of ways. Dr. Lee Hoffman filed this report of his activities in Clarksdale: "Attended a civil rights worker who was beaten over the head…. Played football with local high school boys.…Visited several sick local people, with nurse…. Was arrested for being out after curfew…. Put a lock on a Freedom House…. Attended funeral at request of family of a terminal patient I had seen earlier" [3].

Not all the medical volunteers adjusted well to their new environment [4, 5]. Several physicians brought with them an attitude of superiority, based on their training and status. A few refused requests to use their rented cars to transport people to meetings or to assist in the normal tasks that people shared in the project. Others would not examine local blacks with serious health problems, either because such work was not on their assigned list of responsibilities or because they feared retribution from Archie Gray. Still, overall the work of the Medical Committee during Freedom Summer was a success, receiving high marks from the veteran staff members and college volunteers. The physicians did provide medical support, but more important was simply the fact that they were there, an adult professional presence that contributed a small sense of security to a besieged group of freedom fighters.

It is not surprising, then, that after the summer the participating health care professionals decided to make the Medical Committee for Human Rights a permanent organization, with a headquarters and paid staff in New York and chapters in major cities across the country. Its membership rolls boasted such health care notables as Benjamin Spock, Paul Cornely, and Paul Dudley White, who had been President Eisenhower's personal physician. A predominantly white organization, the committee would continue to assist civil rights workers in Mississippi and other southern states but shifted its focus to deal with health problems facing thousands of poor blacks who lacked any medical services. With that in mind, MCHR hired a young black psychiatrist named Alvin Poussaint as its southern project director to work from its office in Jackson. Poussaint was assisted by a staff of nurses, including Phyllis Cunningham and Josephine Disparti.

During its two years in the South, MCHR made a significant contribution to ending hospital segregation. Members annually picketed the national meeting of the American Medical Association, which until the late 1960s permitted its affiliate state associations to deny membership (and thus hospital privileges) to black physicians [6]. They also operated a free clinic in the Mississippi hamlet of Mileston, which became the inspiration for MCHR's most important and enduring contribution: the comprehensive community health center.

Jack Geiger had persuaded a wealthy benefactor to fund the Mileston clinic, which provided free diagnostic and acute care. The clinic was a success, but it was a drop in the bucket. Hundreds of thousands of black Mississippians lacked proper health care; many had never even seen a physician. In a 2000 interview, Geiger explained that he realized that it would be impractical to "go out and find philanthropists for every

new clinic." In December of 1964, a memorable meeting took place in Greenville, in the Mississippi Delta. There, late in the evening, Geiger began to discuss the health care experiment he had seen firsthand in apartheid South Africa, where a decade earlier he had studied under two young physicians, Sidney and Emily Kark. The Karks had developed a concept called community-oriented primary care and applied it in two clinics in an urban public housing project and on a rural tribal reserve. Staff members drew up a comprehensive plan, including health services, nutrition programs, preventive medicine, even environmental interventions. That night Geiger came up with the idea that a northern medical school should come down to the Delta and operate a comprehensive program: health, community organization, and social change.

With the invaluable assistance of Count Gibson, chair of the Department of Medicine at Tufts University, Geiger persuaded the new federal poverty agency, the Office of Economic Opportunity, to fund two comprehensive health centers sponsored by Tufts, one in the Boston housing project at Columbia Point and the other in Mound Bayou, in the heart of the Mississippi Delta. Shortly after the center opened at Columbia Point, Senator Ted Kennedy paid a visit and was so impressed that he pushed through an appropriation of $51 million to start new health centers. The program expanded rapidly. By the second decade of the twenty-first century there were some 1,198 centers, operating at more than 8,900 sites, providing care for more than 21 million needy Americans [7].

With the decline of the southern civil rights movement in the late 1960s, MCHR chapters in northern cities began to deal with health issues closer to home. Physicians still constituted the majority of the membership, but medical and nursing students and social workers who identified with the agenda of the New Left joined MCHR and expanded its mission. MCHR activists opposed the Vietnam War, opened free clinics in inner cities (sometimes in cooperation with the Black Panthers), pressured medical schools to enroll more black students, and supported a woman's right to choose long before *Roe v. Wade*. MCHR's last major initiative, launched in the early 1970s, was the campaign to enact a national health insurance program, led by national chairman Quentin Young. As they had in the past, the American Medical Association, pharmaceutical companies, and private health insurers successfully lobbied Congress to defeat "single-payer" legislation [8, 9]. Beset by internal division and sectarian battles, the MCHR went into decline during the Nixon years and did not survive Ronald Reagan's presidency.

But the Medical Committee for Human Rights left its mark on American history and provided a model for organizations that succeeded it, like Physicians for Human Rights and Physicians for a National Health Program, co-founded by Quentin Young. Their slogan "health care is a human right" has been dusted off to become the rallying cry of the new health care reform movement. Its most enduring legacy, then, has been the continuing social activism of its former members. Martin Luther King spoke to and for them when, addressing the annual MCHR convention in 1966,

he said: "Of all the forms of inequality, injustice in health care is the most shocking and inhumane" [10].

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HISTORY OF MEDICINE
A Brief History of Environmental Bioethics
Cristina Richie

As a response to anthropogenic—that is, human-caused—climate change, nearly every sector of public and private life has been scrutinized by ecologists. Automobile pollution, greenhouse gas emissions from livestock, aerosol cans, and individual reproduction have all been topics of environmental policy and practice in the United States since the 1960s [1]. Nearly 30 years ago medicine's attention was first brought to the effects of ecological matters such as pollution and carbon emissions on human health, concerns that have come to be referred to as "environmental bioethics."

Efforts to quantify "the environmental impact of health care…to determine the potential value of mitigation efforts and to reduce harm associated with health care delivery" [2] have come primarily from several scholars and a few notable journals. This article will provide background on the integration of environmental ethics into health care [3]. I will move chronologically through a brief history of the field.

Van Rensselaer Potter

Van Rensselaer Potter's first book *Bioethics: Bridge to the Future* expanded the concerns of medical ethics—such as responsibility and rational action—to other branches of life like ecology [4]. Potter saw the interconnectedness of human life and nature as self-evident, given that we humans are situated in a natural environment, and sought to connect us not just to health within the hospital, but to holistic life in the world as well.

In 1988 he published his second and last book *Global Bioethics: Building on the Leopold Legacy* [5]. *Global Bioethics* attempted to link the medical industry back to our earthy origins. Although medicine was made by and for humans, we had come to dominate "nature" instead of live harmoniously with it. In the opening pages Potter laments that, "with the focus on medical options, the fact that bioethics had been proposed to combine human values with ecological facts was forgotten by many" [6]. Potter considered continuation of the species to be of the utmost importance, but he recognized that there was an "ecological need to limit the exponential increase in the human population…[and] no program [of conservation or advancement] can hope to succeed without the acceptance of controlled human fertility as a basic ethical imperative for the human species" [7]. Potter's work located bioethics in the *bios*—the life in the world—and drew a connection between medicine and conservation. His foundational writings opened the door for multidirectional progress in environmental bioethics in the years to follow.

Jessica Pierce
In the late 1980s, about a decade after Potter's second book, Dr. Jessica Pierce appeared as a major advocate for environmentally sustainable advances in medical and hospital practices, taking up Potter's work for a "second generation" of environmental bioethicists.

In 1997 Pierce examined the idea of "greening" health care products [8, 9]. Connecting what happens within the walls of hospitals to the natural world suggested avenues for change. She discussed reducing the use of hazardous chemicals in facilities and using environmentally friendly cleaning products, now common practices in many hospitals and other businesses.

Noting that "about 25 percent of health problems are already environmental in origin" [10], in 2001 Pierce demanded that the health care industry examine the way in which human health was inextricably linked to our ecosystem and dependent on a healthy planet. She called for bioethics to examine "health care's shared responsibility for the environmental problems created by the acquisition, processing and transportation of natural resources required to make the supplies and energy used by consumers" since "health care services represent a significant sector of intensive North American economies" [11]. Her vision for sustainable health care combined the conservationist sensibilities of ecology, the call for slowing the rapid development of the global marketplace, and the more specific conclusion that health care, too, must become "smaller."

The *Canadian Medical Association Journal* and the *Journal of Medical Humanities*
The years between 2000 and 2003 saw growing academic interest in environmental bioethics and issues related to human health and planetary sustainability. The *Canadian Medical Association Journal* and the *Journal of Medical Humanities* both ran series exploring ecology and medical ethics. The editorial piece introducing the *Canadian Medical Association Journal's* 2000-2001 series on environmental bioethics credited Michael McCally, MD, for suggesting the articles on human health, the economy, social justice, and national environmental security [12]. The nine articles in the series covered population and consumption, climate change, ozone depletion, cancer, war, endocrine disruption, species loss, sustainable health care, and risk assessment [13]. The diversity of publications attested to the varied concerns of environmental bioethics.

Dovetailing with this effort, in 2002 the *Journal of Medical Humanities* dedicated an entire issue to the declining environment and health care [14]. Authors wrote on such varied topics as "environmental thinking," the role of natural light in human health, the Amish ethos of placing communal needs above individual rights to prolonged life, the need for simple living and a restructuring of the global economy to aid public health, connections between ecofeminism and feminist bioethics, the allure of biotechnologies and implications of resource diversion on a planet with limited resources, and the role of nature and childlike wonder in our declining years. This

expanded the notion of environmental bioethics from a field solely relevant to medicine to one that was also of interest to literature, religion, feminism and global justice, thus solidifying the interdisciplinary character of environmental bioethics.

In 2004, Jessica Pierce co-authored (with Andrew Jameton) *The Ethics of Environmentally Responsible Health Care* [15]. This full-length treatment of environmental bioethics was one of the first books since Potter's to address the health needs of human beings—both current and future—and the limits of the shared ecosystem that sustains us. Focusing specifically on the United States health care system, the book highlights the tensions between health care needs in developed and the developing world, the individual and the community, and the limits of the planet and the demands of a growing human population.

Recent Trends
Nearly ten years passed before another "generation" of environmental bioethics emerged. In 2012 two promising developments brought environmental bioethics back to the forefront of medicine. David Resnik's *Environmental Health Ethics* revisited the trails that Potter and Pierce had blazed and expanded on issues of nutrition, natural disasters, and public health [16]. In addition, the American Society for Bioethics and Humanities (ASBH), which has an affinity group for environmental bioethics, sponsored an undergraduate conference entitled "Bioethics: Intersections of Global Health and Environmental Policy" [17].

The impact of climate change on the human population has continued to receive interest in the medical industry, urging conservation to better the lives of those who currently suffer under the effects of global warming, including conditions of food scarcity, respiratory disease and drought. It seems that at every turn there is a new organization [18], ethicist [19, 20], or initiative [21], like the Healthy Hospitals Initiatives [22] and Practice Greenhealth [23], ready to take on the challenge of environmental degradation and human health, health care, and personal responsibility. Health care professionals and those who teach them must be prepared to examine the implications of carbon dioxide emissions on human well-being and make decisive steps towards sustainability.

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SECOND THOUGHTS
Physicians' Social Responsibility
Catherine Thomasson, MD

Providing medical care for a child who is injured in an auto accident treats the child; advocating for laws that require effective car seats prevents children from being injured in the majority of car accidents. It's safe to say that providing medical care to patients is a service to individuals, but it is public advocacy that impacts the larger determinants of health. Is advocacy, therefore, a role that physicians are professionally obligated to undertake?

Some of the answer comes from the question, *what causes disease*? Provision of medical care alone does not address all the causes of poor health; hence physicians, whose task is to promote health, must go beyond medical treatment for individuals, advocating for improvement in the broader conditions that affect health.

There are many determinants of and contributors to health and illness. In addition to the individual behaviors and health practices, determinants of personal health include genetics, demographic factors, exposure to infectious and other illness-causing agents, income, and education. Some people have more control over these factors than do others. Determinants that affect large groups of people include factors such as access to health care, adequate employment and working conditions, clean air and water, safe housing, and freedom from violence. According to the World Health Organization, "The social determinants of health are the conditions in which people are born, grow, live, work and age. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels" [1].

Social determinants of health are capable of causing far more deaths and disease than the average person might believe. For example, in the United States prior to the Affordable Care Act, 13 percent of whites, 18 percent of blacks, and 31 percent of Hispanics had no health insurance [2], a clear instance of social factors—among them, race—influencing individual health. Clean air, safe drinking water, adequate housing, and sufficient food are instrumental in promoting health. Can you be healthy in a war-torn country or drinking water downstream from a coal ash dump?

As a medical student in Detroit caring for a hospitalized asthmatic child, I learned that she had been hospitalized numerous times and that her asthma was triggered by fighting in her home. She needed acute treatment for her asthma, but to prevent future exacerbations, her family also needed help in managing the strife caused by poverty. Was that a role for her doctor? I was taught that as medical professionals we should take a broader history and help her family by providing social supports in the

same way that I was taught to make sure that her family had the money (or insurance) to purchase her medicines or that, too, would cause her to be right back in the emergency room. These are examples of the role of individual patient advocacy.

Without being advocates for our patients we cannot address their health status or their illnesses adequately. Social conditions of poverty, lack of nutritious food, interpersonal violence, and racism affect health more than infectious disease agents.

It is but a short step, then, to evaluate the community and identify conditions that only public advocacy will ameliorate. Advocating for adequate housing, for example, can improve health. City planners in Salt Lake City found that it was also cost-effective to provide free housing to those who were homeless rather than pay the health and social bills [3].

Historically men and women in medicine have been sought out to redress social conditions that contribute to illness. Physician and scientist Rudolf Virchow was sent to evaluate a Prussian community devastated by typhus, a bacterial disease carried by lice. He found severe malnutrition due to drought unrelieved by governmental support. Virchow did not advocate treatment of medicine to kill the typhus organism or even measures to kill the lice, but outlined a revolutionary program of social reconstruction including full employment, higher wages, the establishment of agricultural co-operatives, universal education, and the disestablishment of the Catholic Church, which basically ruled Prussia at the time [4]. This is not unlike the current situation in Syria, where residents suffered four years of unremitting drought due to climate change. In a country that is normally able to feed itself, three million people had inadequate food, and one million were driven from their land [5]. The government's response to protests—to which climate-related resource scarcity had contributed—led to a civil war [6]. To reduce the likelihood of additional strife in Syria and elsewhere, physicians will be instrumental in advocating for reversing the causes of climate change and preparing our communities for its known impacts.

Health professionals have the skills to be excellent advocates. They are trained to seek causes of illness and demand evidence to evaluate treatments. This leads them to understand that solutions advocated for social ills should be evaluated and proven effective as well. Most can translate scientific complexities such as diagnoses and treatments into layman's terms and have the ability to communicate complex issues. In general, physicians are respected and have access to policymakers and the opportunity to influence public thought and public will.

Are physicians concerned that the coal plant upwind of my former patient's home and the homes of many others in that poor neighborhood of Detroit are adding to rates of asthma and accelerating climate change? The American Medical Association exhorts that physicians "advocate for the social, economic, educational, and political changes that ameliorate suffering and contribute to human well-being" [7]. Likewise, the American Academy of Pediatrics states that its organization "was founded by

pediatricians to help ensure that patient advocacy remains a priority for the profession" [8].

Advocacy skills, however, need to be taught. Being an advocate requires that an individual believes he or she can effect change, is motivated to do so, and is able to envision what improvements are needed and how they can be instituted. Many incoming medical students want to improve access to health care for individuals because they can readily see that care for patients is inadequately provided in the US system. I have witnessed many young health professionals become empowered to take action addressing the underlying causes of disease, while still learning how to address acute medical disease in their patients. Both are exciting and both need to be taught.

There are sometimes advocate role models within medical schools who lead students by example, giving them the vision and empowering them to effect change. These role models provide and advocate for solutions such as free clinics or insurance reform. Without specific instruction however, the vast majority of students do not learn about the role of physicians as advocates.

Program development to provide advocacy skills training is now occurring in some locations; unfortunately it is still the exception rather than the rule. Wayne State University offers an elective called Medicine and Political Action in the Community [9]. Some residency programs, such as those at Thomas Jefferson University Hospital [10] and UCSF's Physician in Society Rotation [11], focus on these topics as well.

Advocacy can be as simple as voting for officials who will take the social determinants of health seriously or sending an email to an elected official. But it can be as complicated as suing the EPA to create a rule to limit greenhouse gas emissions, arguably the greatest threat to public health of this century. There are actions that can be taken by individuals and those that require organizations.

All citizens of this country have many rights. One can argue that they also have responsibilities. One of those responsibilities is to make their community or "world" a better place. Doctors are not exempt. The advocacy training I received in medical school has translated to a lifetime of practice. I believe all physicians could provide much more benefit to public health if they receive advocacy training early in their careers.

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Related in VM
Advocacy by Physicians for Patients and for Social Change, September 2014

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Virtual Mentor

American Medical Association Journal of Ethics
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